

# DJ-G1T/E

## Service Manual

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ALINCO ELECTRONICS INC.

# SPECIFICATIONS

## 1) General

Frequency Coverage:	RX:108.000 ~ 173.995MHz (T version)
	RX:440.000 ~ 449.995MHz (T version)
	TX:144.000 ~ 147.995MHz (T version)
	RX:144.000 ~ 145.995MHz (E version)
	RX:430.000 ~ 439.995MHz (E version)
	TX:144.000 ~ 145.995MHz (E version)
Modulation:	F3E
	A3 (receive only)
Antenna Impedance:	50Ω
Antenna Connector:	BNC
Power Supply Voltage:	7.2~12.0V DC max.13.8VDC
TX Current @7.2VDC HI/MID/LOW:	approx. 1.0A/0.8A/0.4A
@13.8VDC HI:	approx. 1.6A
RX Current @AF 200mW 8Ω:	approx. 120mA
Squelched:	approx. 55mA
Battery Save Mode:	approx. 25mA ave.
Frequency Stability:	5p.p.m.
Dimensions W x H x D:	50mm x 116mm x 37mm
Weight:	360gr.

## 2) Transmitter

Output Power	HI:	approx. 5W (13.8VDC) 1.5W (7.2V)
	MID:	approx. 1W
	LOW:	approx. 0.2W
Modulation:		Variable Reactance
Max. Deviation:		+/- 5kHz
Spurious Emission:		not more than -60dB
Microphone Impedance:		2kΩ

## 3) Receiver

Receiving System:	Double Conv. Super-Heterodyne
IF1st/2nd:	30.85MHz/455kHz
Sensitivity (12dB SINAD):	TX Band Center max. -16dBμ
	RX Subband Center (about 440MHz) max. -10dBμ
Selectivity -6dB:	not less than 12kHz
-60dB	not more than 30kHz
Spurious Ratio:	not more than -60dB
Audio Output (@ 10% distortion):	min. 200mW 8Ω

# CIRCUIT DESCRIPTION

## 1) Receiver System

### 1. Front End

The receiver system is the double superheterodyne.

The first IF is 30.85MHz and the second IF is 455kHz.

#### **108.00MHz~173.995MHz**

The receive signal is passed through a low-pass filter (L1, L2, L4, C3, C4, C5 and C7), resonator circuit (L12, varicap D7 and D8), and input to the RF amplifier (Q6). The signal from Q6 is passed through resonator circuit (L13, varicap D10 and D11), resonator circuit (L15, varicap D13, D14), led to the first mixer Q8 and the signal is converted into the 30.85MHz. The resonator circuit (L12, L13, L15, varicap D7, D8, D10, D11, D13 and D14) is controlled by P/D voltage. The bandwidth characteristics is obtained the frequency of 108.00MHz~173.995MHz. The diodes (D9, D12, D15 and D22) are ON at 108.00MHz~139.995MHz, and they are OFF at 144.00MHz~173.995MHz. Local oscillator signal from VCO is injected to the base of mixer (Q8). The radio uses the upper side superheterodyne.

#### **420.00MHz~ 479.995MHz**

The receive signal is passed through a high-pass filter (L10, L11, C31, C32 and C33), band switch (D16B), trap circuit (L18, C57, C58 and C59) and input to the RF amplifier (Q12). The signal from Q12 is passed through resonator circuits (L19 and C60), (L20, C64 and C65), led to the first mixer Q13 and the signal converted into 30.85MHz. Local oscillator signal is passed through the buffer amplifier (Q17), and injected to the base of mixer (Q13). The radio uses the upper side superheterodyne at 420.00MHz~429.995MHz, and uses the lower side superheterodyne at 430.00MHz~479.995MHz.

#### **800.00MHz~999.99MHz (DJ-G1E only)**

The receive signal is passed through a high-pass filter (L10, L11, C31, C32 and C33), (printed coil, C67 and C69) and input to the RF amplifier (Q14). The signal from Q14 is led to the first mixer Q15 and the signal converted into the 30.85MHz. Local oscillator signal is input to the doubler amplifier (Q16), and injected to the base of mixer (Q15). The radio uses the lower side superheterodyne.

### 2. IF Circuit

The receive signal is mixed with the local signal in the mixer to gain the difference frequency of 30.85MHz. The unwanted frequency band of the first IF signal is eliminated by the monolithic crystal filter (FL302), and led to IF amplifier Q301.

### 3. Demodulator Circuit

FM and AM demodulators are built in the IC301(TK10930). The AM circuit becomes active when Pin14 of IC301 goes low.

The IF signal is amplified by the first IF amplifier of Q301, and input to Pin24 of IC301, where it is mixed with the second local oscillator signal (30.395MHz, X303) and so is converted into the second IF signal (455kHz).

The 455kHz second IF signal is output from Pin3 of IC301, and unwanted frequency band of the second IF signal is eliminated by a ceramic filter (FL301). The resulting signal is led to the Pin5 and 7 of IC301.

#### ***Demodulator of FM***

The second IF signal of Pin7 of IC301 is led to the internal limiter amplifier, quadrature detection circuit. The audio signal is output from Pin12 of IC301.

#### ***Demodulator of AM***

The second IF signal of Pin5 of IC301 is led to the internal AM amplifier, AM detection circuit. The audio signal is output from Pin13 of IC301.

The AGC circuit is used to obtain a stable audio output level even if the input level is changed. The forward AGC signal is output from Pin18 of IC301, and input to the AGC amplifier (Q326). The gain of the first IF amplifier is controlled by the AGC signal.

### **4. Audio Circuit**

#### ***FM Mode***

The audio signal from Pin12 of IC301, which is pre-emphasized on transmitting, is led to the emphasis circuit (R334 and C338) and compensated for the audio frequency characteristics. The audio signal is amplified by AF amplifier (Q306), led to the audio H.P.F. (Q310, C346, C347 and R346). The audio signal is input to the volume (VR311), and input to the power amplifier Pin3 of IC305, and output from Pin6 to drive the speaker.

#### ***AM Mode***

When you select the AM mode, switching transistors Q324, Q308 and Q309 become ON, and then Pin14 of IC301 goes to Low (AM detection circuit is active), Q307 is active and Q306 is not active. The audio signal from Pin13 of IC301 is amplified by AF preamplifier (Q307), led to the audio H.P.F. (Q310, C346, C347 and R346), as well as in the FM mode, then input to the volume (VR311) and the power amplifier to drive the speaker.

#### ***Note***

The IC301 (TK10930) of the FM detection circuit is active even in the AM mode, FM detector circuit is active. Q306 connects the base of the FM audio preamplifier Q309 to the ground so that the FM audio signal by the FM detection is cut.

### **5. Squelch Circuit**

The noise in the audio signal from Pin12 of detection IC, IC301 is passed through the squelch control variable resistor (VR311) and input to the noise filter amplifier consisting of C323, C322, C325, R317 and R316, internal noise amplifier IC301. The desired noise of the audio signal is output from Pin20 of IC301 and so amplified by noise amplifier (Q305). The amplified noise signal is rectified by D302 and then input to Pin21 of IC301. When the voltage of Pin21 is above 0.7V, Pin22 of IC301 goes to "low" (squelch circuit is active). When the voltage of Pin21 is below 0.7V, Pin22 of IC301 goes to

"High" (squench circuit does not work). This signal "SD" is led to the CPU Pin of IC401, and then processed by CPU. When the squench circuit is active, Q311 and Q304 are off. When the squench circuit does not work, Q311 and Q304 are on. In this way the audio output signal is controlled. When the squench circuit does not work, Q323 goes on, the squench indicator LED (D303B) light turns on. When the squench circuit is active, Q323 goes off, the squench indicator LED (D303B) light turns off.

## 6. Audio Power Amplifier Circuit

When the power supply voltage of radio becomes above 6.3V in the voltage stabilizer circuit (Q302, Q303, D301 and D304). The power supply voltage of audio power amplifier IC (IC305) is controlled below 6.3V. The voltage of audio power amplifier IC (IC305) is controlled by the Q304. The Q304 is ON when the squench is OFF, BEEP sound is outputting, and DTMF monitor (TX) is ON, then IC305 works.

## 7. Signal Meter Circuit

The IC301 has S meter function. When the signal strength is low, voltage of Pin 16 becomes lower, and when the signal strength is high, voltage of Pin 16 becomes higher. The S meter voltage of Pin 16 is led to the variable resistor (VR310) and input to the Pin of IC401(CPU). It is converted by A/D converter built-in CPU, and S is appeared in the LCD.

# 2) Transmitter System

## 1. Microphone Amplifier Modulator Circuit

After the voice is converted into the electric signal through the internal or external microphone, the signal is led to the microphone amplifier IC304. IC304 consists of two operational amplifiers. One operational amplifier (Pin5, 6 and 7) uses pre-emphasis circuit and IDC circuit, and the other operational amplifier (Pin1, 2 and 3) uses splatter filter. The output from the microphone amplifier is passed through variable resistors VR305 for maximum deviation adjustment to cathode of varicap (D206) diode of the VCO, controlling the VCO frequency and so producing a frequency-modulation.

## 2. Power Amplifier Circuit

The signal from VCO is amplified by RF amplifier Q4 and drives amplifier Q3, and input to the power module Pin1 of IC1. The signal is amplified by power module IC1, and output from Pin5 of IC1, and then led to the low-pass filter (L6, C15, C16), the antenna switch circuit D1 and the low-pass filter (L1, L2, C3, C4 and C5). The unwanted harmonics frequency signal is eliminated by the low-pass filter and input to the antenna.

## 3. APC Circuit

Part of the transmission power is passed through the C17, C11 and detected by D3. The detected DC voltage is amplified by Q2 and drives the Q1. This voltage is controlled by the bias voltage of Pin3 of IC1 and collector voltage of RF amplifier Q3 to stabilize the transmission power. When the transmission power goes higher than the settled power, detected voltage by D3 goes higher, collector voltage of Q1 goes to low. When the transmission power goes lower than the settled power, detected voltage by D3 goes lower, collector voltage of Q1 goes to high. The high power setting variable resistor

VR308 and the middle power setting variable resistor VR307 located in the IF unit. The radio has no low power setting variable resistor.

Power	High	Middle	Low
D306A	OFF	ON	OFF
D306B	ON	OFF	OFF

### 3) PLL Circuit

The PLL serial data (clock, data, strobe) is sent from CPU IC401. The Pin9 of IC2 is clock, Pin10 of IC2 is data, Pin11 of IC2 is strobe. The VCO signal is amplified by RF amplifier Q19, and input to the Pin8 of IC2. The programmable divider of IC2 is determined by frequency data, and it divides (1/N) input signal of IC2. Resulting signal will be 5kHz or 6.25kHz.

#### 1. Reference Freq. Circuit

There are 8 channel steps (5, 10, 12.5, 15, 20, 25, 30 and 50kHz) of DJ-G1T/E. The reference frequency is obtained by divided by 2560 or 2048 reference oscillator (12.8MHz). The reference frequency (5kHz) uses a channel step of 5, 10, 15, 20, 25, 30 and 50kHz. The reference frequency (6.25kHz) uses a channel step of 12.5kHz.

#### 2. Phase Comparator Circuit

The reference frequency of the IC2 is 5kHz or 6.25kHz. The VCO output frequency divided by N is compared with 5kHz or 6.25kHz in the phase comparator.

#### 3. Loop Filter Circuit

If the phase error should occur in PLL, the charge pump (Pin5 of IC2) outputs the pulse. This signal is converted into DC voltage by PLL loop filter (C84, C85, C86, R70, R71, R72 and R73), and input to the varicap diode (D202, D203, D204 and D205) in the VCO unit for the frequency control.

### 4) VCO Circuit

The frequency control voltage from the PLL circuit is input to the cathode of the varicap diode D202 (VCO1), D203 (VCO1), D204 (VCO2) and D205 (VCO2).

The output frequency of VCO is amplified by RF amplifier Q203, and output from VCO unit. The circuit is Colpitts oscillator. To get the wide band receive range, the radio has two VCO's. To get the wide oscillation frequency range, the fixed capacitance in the VCO is set to the smallest value.

	Oscillator	Tune Varicap	Modulation Varicap	Shift Switch
VCO1	Q201	D202, D203	D206	D201
VCO2	Q202	D204, D205	-----	-----

Each of the oscillation frequency of VCO1 and VCO2 is as follows.

	Oscillation Frequency	Tune Varicap
VCO1  (T TX)  (E TX)	138.85MHz~170.845MHz	108.00MHz~139.995MHz
	170.85MHz~204.845MHz	140.00MHz~173.995MHz
	134.575MHz~169.57MHz	
	144.00MHz~147.995MHz	
	144.00MHz~145.995MHz	
VCO2  (E)	450.85MHz~460.845MHz	420.00MHz~429.995MHz
	399.15MHz~419.145MHz	430.00MHz~449.995MHz
	419.15MHz~449.145MHz	450.00MHz~479.995MHz
	384.575MHz~484.57MHz	800.00MHz~999.99MHz

## 5) DTMF Circuit

### 1. Encoder Circuit

The CPU has the DTMF encoder. The column signal is output from Pin98, and the row signal is output from Pin99. The DTMF signal is determined corresponding to the combination of the column and row. DTMF signal is passed through variable resistor for modulation adjustment, and input to the modulation terminal of VCO unit via the splatter filter.

### 2. Decoder Circuit

The detected signal from IC301 is input to the DTMF decoder Pin2 of IC402. When the tone squelch decoder decodes the input tone signal frequency as the programmed frequency, the decoded data is output from Pin11, 12, 13 and 14 processed in the CPU IC401.

## 6) Tone Squelch

### Circuit

#### 1. Encoder Circuit

The 4-bit digital codes are output from Pin 34, 35, 36 and 37 of CPU and converted into the mimic sign wave with the R437 and R440. The sign wave is input to the low-pass filter (R435, R436 and C419), AF amp Q313, and via the active low-pass filter (Q314, R359, R360, R363 and C364), input to the modulation terminal of VCO unit. 39 selectable tone frequency waves are provided.

#### 2. Decoder Circuit

The tone decoder unit EJ-16u is option. The detected signal from Pin12 of IC301 is input to the Pin15 of IC701 in the EJ-16u via CN302. When the tone squelch decoder decodes the input tone signal frequency as the programmed frequency, "high" signal is output from Pin9. When the tone squelch decoder does not decode the input tone signal frequency as the programmed frequency, "low" signal is output from Pin9, and it is input to the CPU. Consequently the audio signal is controlled by CPU.

## 7) Terminal Function of Microprocessor

No.	Pin Name	Signal	Name	I/O	Description	H	L	Remarks
01	AVcc	Vdd		/	AD Converter Power Supply Terminal			
02	AN0	BP1		A/D				
03	AN1	MRC		A/D	Microphone Remote Control Input			
04	AN2	+BD		A/D	Power Supply Voltage Detection			
05	AN3	SMT		A/D	S-Meter Input			
06	AVss	GND		/	AD Converter Ground			
07	TEST	Vdd		I	Connect to Vdd			
08	OSC1	Xin		I	MCU Internal Clock Input			
09	OSC2	Xout		O	MCU Internal Clock Output			
10	RESET	RST		I	MCU Reset Input			
11	X1	Vdd		I	Connect to Vdd			
12	X2	NC		O	Open			
13	GND	GND		/	Ground Terminal			
14	D0	FUNC		I	Function Key Input			
15	D1	MONI		I	Monitor Key Input			
16	D2	PT5	PTT1	I	PTT Switch Input			
17	D3	PTT2		I	TX Low Power Input			
18	D4	M.MUTE		O	Microphone Mute			
19	D5	LAMPC		O	Lamp ON/OFF			
20	D6	SDA		I/O	Data for EEPROM			
21	D7	SCL		O	Clock for EEPROM			
22	D8	STB1		O	Strobe for PLL IC			
23	D9	STB2	TICD	I/O	CTCSS Unit Detection and Strobe			
24	D10/STOPC	TSQD		I	CTCSS Tone Detection Input			
25	D11/INT0	Bu		I	Back Up Signal Detection Input			
26	R00/INT1	SD		I	SD Signal Input			
27	R01/INT2	R01		I	Rotary Encoder Up Input			
28	R02/INT3	R02		I	Rotary Encoder Down Input			
29	R03/INT4	DSID		I	DTMF Signal Detection Input			
30	R10/TOB	BEEP		O	Beep Tone Output			
31	R11/TOC	1750		O	Tone Burst (1750Hz) Output			
32	R12/TOD	DPD		O	DTMF ON/OFF			

No.	Pin Name	Signal	Name	I/O	Description	H	L	Remarks
33	R13/EVNB	DTOE		O	DTMF Signal Input			
34	R20/EVND	TONE0		O	Sub Tone Signal Output			
35	R21/SCK	TONE1		O	Sub Tone Signal Output			
36	R22/SI	TONE2		O	Sub Tone Signal Output			
37	R23/SO	TONE3		O	Sub Tone Signal Output			
38	R30/SEG1	DQ1	BP2	I	DTMF 4-Bit Data Input			
39	R31/SEG2	DQ2	BP3	I	DTMF 4-Bit Data Input			
40	R32/SEG3	DQ3	BP4	I	DTMF 4-Bit Data Input			
41	R33/SEG4	DQ4	BP5	I	DTMF 4-Bit Data Input			
42	R40/SEG5	KIN0		I	Key Matrix Input1			
43	R41/SEG6	KIN1		I	Key Matrix Input2			
44	R42/SEG7	KIN2		I	Key Matrix Input3			
45	R43/SEG8	KIN3		I	Key Matrix Input4			
46	R50/SEG9	KOUT0		O	Key Matrix Output1			
47	R51/SEG10	KOUT1		O	Key Matrix Output2			
48	R52/SEG11	KOUT2		O	Key Matrix Output3			
49	R53/SEG12	KOUT3		O	Key Matrix Output4			
50	R60/SEG13	KOUT4		O	Key Matrix Output5			
51	R61/SEG14	CLK		O	Clock Signal			
52	R62/SEG15	DATA		O	Data Signal			
53	R63/SEG16	STB3		O	Strobe for 4094			
54	R70/SEG17	SEG0		O	LCD SEG0			
55	R71/SEG18	SEG1		O	LCD SEG1			
56	R72/SEG19	SEG2		O	LCD SEG2			
57	R73/SEG20	SEG3		O	LCD SEG3			
58	SEG21	SEG4		O	LCD SEG4			
59	SEG22	SEG5		O	LCD SEG5			
60	SEG23	SEG6		O	LCD SEG6			
61	SEG24	SEG7		O	LCD SEG7			
62	SEG25	SEG8		O	LCD SEG8			
63	SEG26	SEG9		O	LCD SEG9			
64	SEG27	SEG10		O	LCD SEG10			
65	SEG28	SEG11		O	LCD SEG11			
66	SEG29	SEG12		O	LCD SEG12			

No.	Pin Name	Signal	Name	I/O	Description	H	L	Remarks
67	SEG30	SEG13		O	LCD SEG13			
68	SEG31	SEG14		O	LCD SEG14			
69	SEG32	SEG15		O	LCD SEG15			
70	SEG33	SEG16		O	LCD SEG16			
71	SEG34	SEG17		O	LCD SEG17			
72	SEG35	SEG18		O	LCD SEG18			
73	SEG36	SEG19		O	LCD SEG19			
74	SEG37	SEG20		O	LCD SEG20			
75	SEG38	SEG21		O	LCD SEG21			
76	SEG39	SEG22		O	LCD SEG22			
77	SEG40	SEG23		O	LCD SEG23			
78	SEG41	SEG24		O	LCD SEG24			
79	SEG42	SEG25		O	LCD SEG25			
80	SEG43	SEG26		O	LCD SEG26			
81	SEG44	SEG27		O	LCD SEG27			
82	SEG45	SEG28		O	LCD SEG28			
83	SEG46	SEG29		O	LCD SEG29			
84	SEG47	SEG30		O	LCD SEG30			
85	SEG48	SEG31		O	LCD SEG31			
86	SEG49	SEG32		O	LCD SEG32			
87	SEG50	SEG33		O	LCD SEG33			
88	SEG51	SEG34		O	LCD SEG34			
89	SEG52	SEG35		O	LCD SEG35			
90	COM1	COM0		O	LCD COM0			
91	COM2	COM1		O	LCD COM1			
92	COM3	COM2		O	LCD COM2			
93	COM4	NC		O				
94	V1	VL1		/	LCD Power Supply			
95	V2	VL2		/	LCD Power Supply			
96	V3	VL3		/	LCD Power Supply			
97	Vcc	Vdd		/	Power Supply			
98	TONEC	DTONC		O	Column Output for DTMF Signal			
99	TONER	DTONR		O	Row Output for DTMF Signal			
100	VTref	Vdd		/	Reference Power Supply for DTMF Output			

## 8) Terminal Function of IC302

**BU4094BF-T1**

No.	Pin Name	Signal	Name	I/O	Description	H	L	Remarks
01	STROBE	STB3		I				
02	DATA	DATA		I				
03	CLOCK	CK		I				
04	Q1	AFPC		O	Power Supply Control for AF Power Amp.	ON		
05	Q2	R5C		O	Power Supply Control for RX 5V		ON	
06	Q3	AFS		O	AF Switch		ON	
07	Q4	AM		O	AM Switch	ON		
08	Vss	GND						
09	Qs							
10	Qs'				IC303 (2)			
11	Q8	T5C		O	Power Supply Control for TX 5V	ON		
12	Q7	SUBC		O	Power Supply Control for Sub Band		ON	
13	Q6	360C		O	Power Supply Control for 360 Band		ON	
14	Q5	870C		O	Power Supply Control for 870 Band		ON	
15	OUTPUT	C5V						
16	Vdd	C5V						

## 9) Terminal Function of IC303

BU4094BF-T1

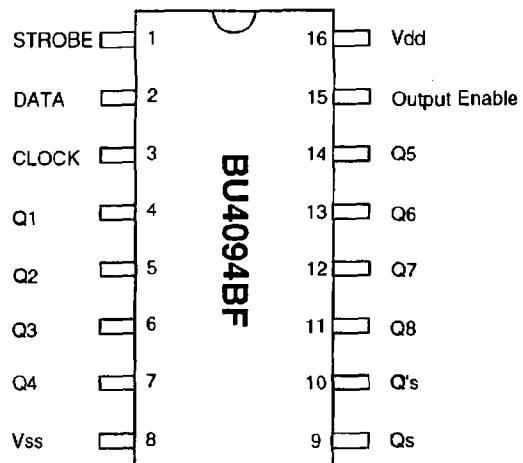
No.	Pin Name	Signal	Name	I/O	Description	H	L	Remarks
01	STROBE	STB3		I				
02	DATA	DATA		I	IC302 (10)			
03	CLOCK	CK		I				
04	Q1	MAINC		O	Power Supply Control for Main Band	ON		
05	Q2	VCO2C		O	Power Supply Control for VHF VCO	ON		
06	Q3	VCO1C		O	Power Supply Control for UHF VCO	ON		
07	Q4	SWC		O	VHF VCO Shift ON/OFF	ON		
08	Vss	GND						
09	Qs							
10	Qs'							
11	Q8			O				
12	Q7	P5C		O	Power Supply ON/OFF of VCO and PLL	ON		
13	Q6	MID		O	TX Middle Power Control	ON		
14	Q5	HI		O	TX High Power Control	ON		
15	OUTPUT	C5V						
16	Vdd	C5V						

Power Control Table

	Q5(HI)	Q6(MID)
High Power	L	H
Middle Power	L	L
Low Power	H	H

# SEMICONDUCTOR DATA

## 1) BU4094 (XA0246) 8-Stage Shift Register

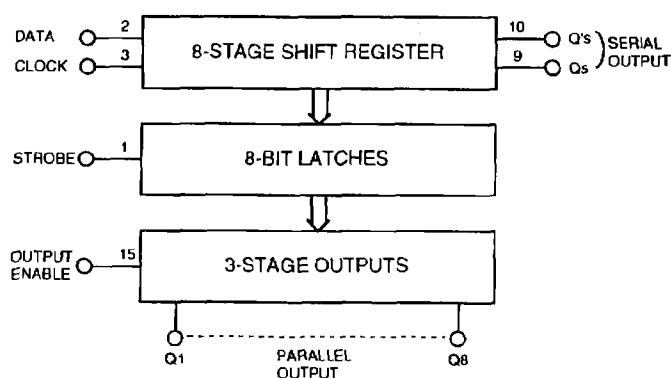


**Function Table**

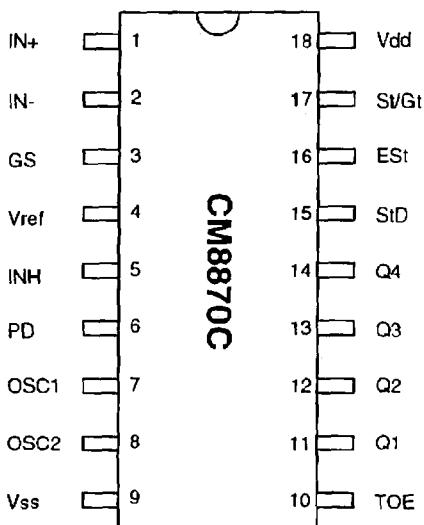
Clock	Output enable	Strobe	Data	Parallel outputs		Serial outputs	
				Q1	Qn	Qs	Q's
	L	X	X	Z	Z	Q7	No Chg.
	L	X	X	Z	Z	No Chg.	Qs
	H	L	X	No Chg.	No Chg.	Q7	No Chg.
	H	H	L	L	Qn-1	Q7	No Chg.
	H	H	H	H	Qn-1	Q7	No Chg.
	H	X	X	No Chg.	No Chg.	No Chg.	Qs

Z=High Impedance  
X=Don't Care

**Block Diagram**



## 2) CM8870CFIT (XA0231) CTCSS Encoder/Decoder



**Function Table**

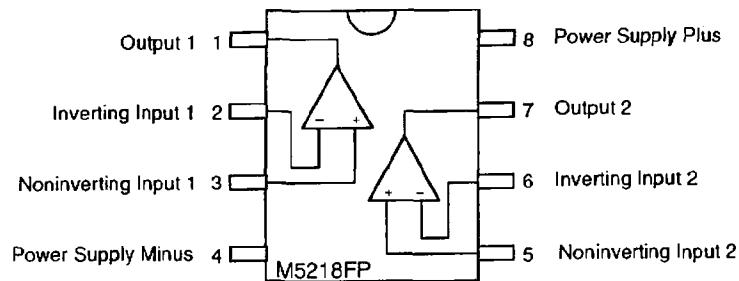
Name	Description
IN+	Inverting Input
IN-	Noninverting Input
GS	Gain Selection
Vref	Reference Voltage Output
INH	
PD	Power Down Control
OSC1	Clock Input
OSC2	Clock Output
Vss	Negative Power Supply
TOE	Three State Output Enable
Q1 Q2 Q3 Q4	Three State Output (RX Data Output)
SiD	Delay Steering Output
ESt	First Steering Output
St/GT	Steering Input/Guard Time Output
Vdd	Positive Power Supply

**Decode Table**

F low	F high	Key	TOE	Q4	Q3	Q2	Q1
697	1209	1	H	0	0	0	1
697	1336	2	H	0	0	1	0
697	1477	3	H	0	0	1	1
770	1209	4	H	0	1	0	0
770	1336	5	H	0	1	0	1
770	1477	6	H	0	1	1	0
852	1209	7	H	0	1	1	1
852	1336	8	H	1	0	0	0
852	1477	9	H	1	0	0	1
941	1336	0	H	1	0	1	0
941	1209		H	1	0	1	1
941	1477	#	H	1	1	0	0
697	1633	A	H	1	1	0	1
770	1633	B	H	1	1	1	0
852	1633	C	H	1	1	1	1
941	1633	D	H	0	0	0	0
-	-	ANY	L	Z	Z	Z	Z

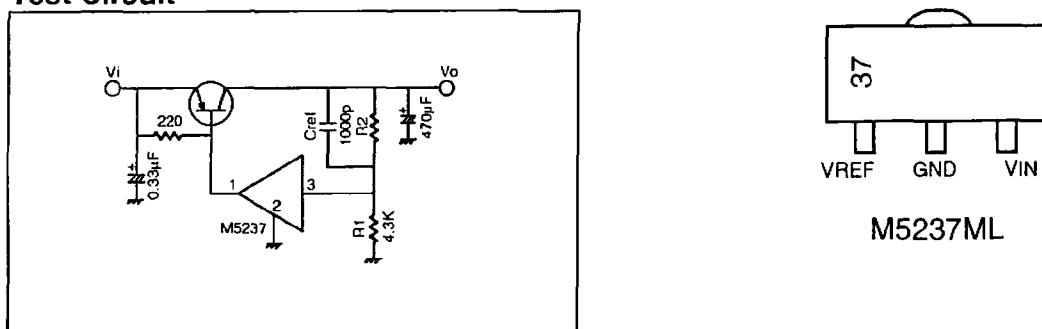
L: Logic Low, H: Logic High, Z=High Impedance.

**3) M5218FP (XA0068)**  
Dual Low Noise  
Operational Amplifiers



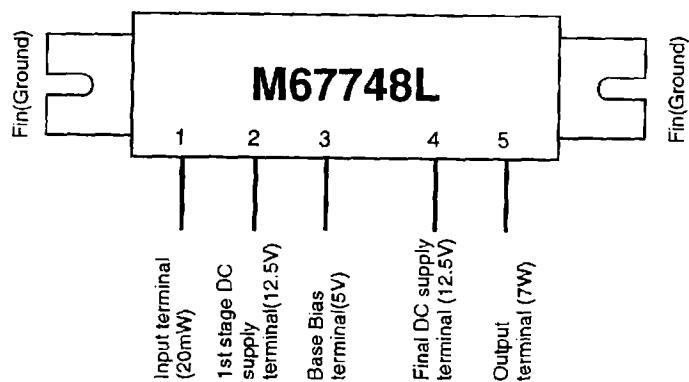
**4) M5237ML (XA0217)**  
Voltage Regulator

**Test Circuit**



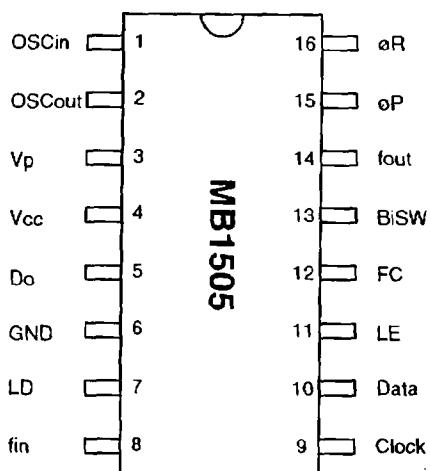
## 5) M67748L (XA0148)

135~150MHz 7W RF Power Module



## 6) MB1505 (XA0240)

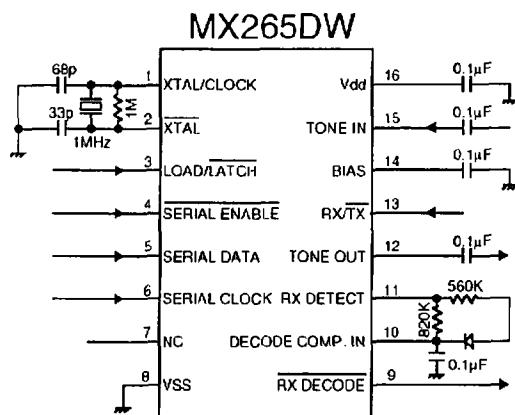
PLL Frequency Synthesizer



**Function Table**

No.	Name	IO	Function
1	OSCin	I	Reference oscillator input terminal
2	OSCout	O	Reference oscillator output terminal
3	Vp	-	Charge pump output terminal
4	Vcc	-	Power supply terminal
5	Do	O	Internal charge pump output terminal
6	GND	-	Ground terminal
7	LD	O	Phase detector output terminal Locked: H
8	fin	I	Prescaler input terminal
9	Clock	I	Clock input terminal
10	Data	I	Serial data input terminal
11	LE	I	Load enable signal input terminal
12	FC	I	Phase switch input terminal
13	BiSW	O	Analogue switch output terminal
14	fout	O	Phase detector input monitor terminal H: fr, L: fp
15	oP	O	Phase detector output terminal for external charge pump
16	oR	O	Phase detector output terminal for external charge pump

## 7) MX265 (XA0241) CTCSS Encoder/Decoder



**Xtal/Clock:** Input to the on-chip inverter used with a 1MHz Xtal or external clock source.

**Xtal:** Output of the on-chip inverter (clock output).

**Load/Latch:** Controls 8 on-chip latches and is used to latch RX/TX, PTL, and D0-D5. This pin is internally pulled to Vdd. A logic "1" applied to this input puts the 8 latches in "transparent" mode. A logic "0" applied to this input puts the 8 latches in the "latched" mode. Data is loaded and latched by a 0-1-0 strobe pulse on this pin.

**Serial Enable:** A logic "0" applied to this input will enable serial programming. This pin is internally pulled to Vdd.

**Serial Data Input:** This is the serial data input. Data is loaded in the following order: D5, D4, D3, D2, D1, D0, RX/TX and PTL. This pin is internally pulled to Vdd.

**Serial Clock Input:** Data is clocked on the positive going edge. This pin is internally pulled to Vdd.

**Vss:** Negative supply.

**RX Tone Decode Out:** This is the gated output of the decode comparator. This output is used to gate the RX Audio path. A logic "0" on this pin indicates a successful decode and that the Decode Comparator Input pin is more positive than the Decode Comparator Ref. input.

**Decode Comparator Input:** This is the inverting input of the decode comparator. This pin is normally connected to the integrated output of the RX Tone Detect line.

**Rx Tone Detect:** In Rx mode this pin will go to logic "1" during a successful decode. It must be externally integrated to control response and deresponse times.

**Tx Tone Out:** The CTCSS sinewave output appears on this pin under the control of the RX/TX pin. This pin, when not transmitting a tone, may be biased to Vdd - 0.7V or O/C .

**Rx/Tx:** This input selects Rx or Tx modes . This function may be selected by this pin, or it may be serially loaded. This pin is internally pulled to Vdd via a  $1\text{ M}\Omega$  resistor.

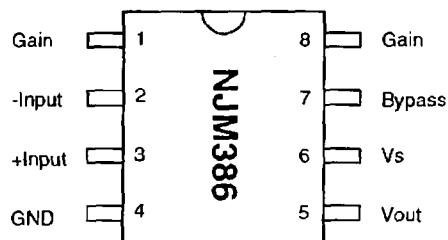
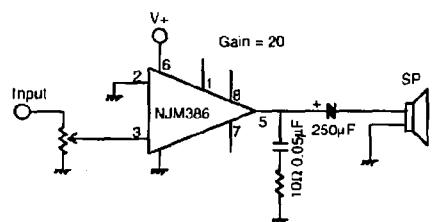
**Bias:** This pin is the output of an internally generated  $\text{Vdd}/2$  bias level and would normally be externally decoupled to Vss via capacitor C6.

**Tone Input:** This is the input to the CTCSS tone detector. It is internally biased to  $\text{Vdd}/2$ .

**Vdd:** Positive Supply.

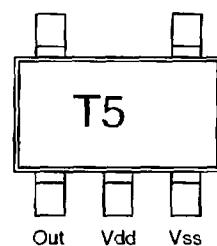
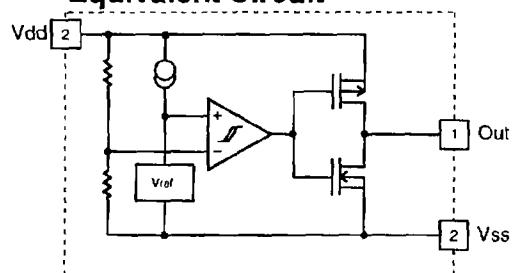
## 8) NJM386 (XA0061) Power Amplifiers

V<sub>+</sub>=9V      RL=16Ω      P<sub>o</sub>=500mW

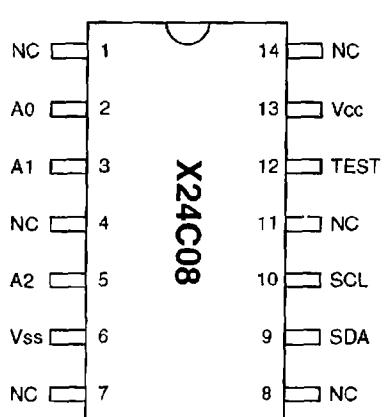


## 9) RN5VL45C (XA0232) Voltage Detector

**Equivalent Circuit**



## 10) X24C08S14-3.0T (XA0226) EEPROM 256 x 8Bit

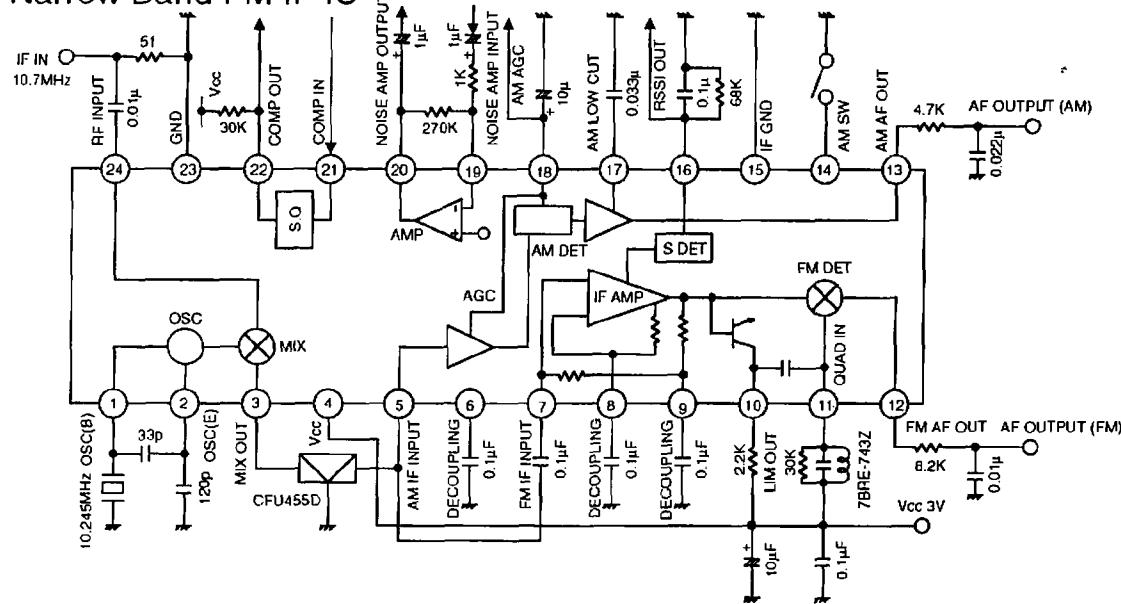


**Pin Names**

Symbol	Description
A0-A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock
TEST	Hold at Vss
Vss	Ground
Vcc	Supply Voltage
NC	No Connect

## 11) TK10930VTL (XA0223)

### Narrow Band FM IF IC

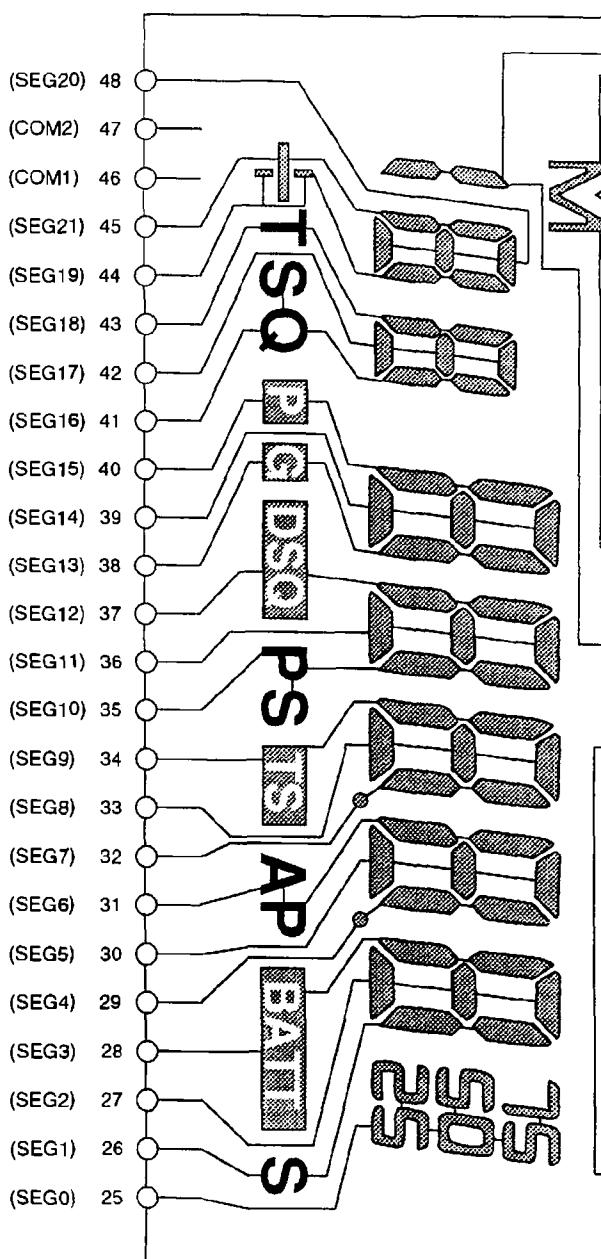


Characteristic	Symbol	Min	Typical	Max	Typical	Condition
Supply Current 1	Icc1		6.8	8.9	mA	No signal, AM ON
Supply Current 2	Icc2		3.9	5.3	mA	No signal, AM OFF
Mixer Conversion Gain	Mg		20		dB	
Mixer Input Impedance	Mz		3.6		KΩ	DC Test
FM						
Limiting Sensitivity	Limit		2.0	8.0	µV	-3.0dB
Output Voltage	Vo1	85	150	230	mVrms	10mVin +/-3kHz DEV
Distortion	THD1		1.0	2.0	%	10mVin +/-3kHz DEV
Output Impedance	Zo		800		Ω	10mVin
Filter Gain	Gf	30	38		dB	Fin=30kHz, Vo=100mV
Scan Control Hi Voltage	SH	2.3			V	Squelch input=2.5V
Scan Control Low Voltage	SL			0.3	V	Squelch input=0V
Squelch Hysteresis	Hys		30		mV	
S meter Output Voltage	S0		0.05	0.5	V	Vin=0mV, RS=68kΩ
S meter Output Voltage	S1	0.05	0.5	0.9	V	Vin=0.01mV, RS=68kΩ
S meter Output Voltage	S2	0.7	1.2	1.7	V	Vin=0.1mV, RS=68kΩ
S meter Output Voltage	S3	1.2	1.8	2.5	V	Vin=1mV, RS=68kΩ
S meter Output Voltage	S4	1.6	2.3	2.9	V	Vin=10mV, RS=68kΩ
S meter Output Voltage	S5	1.8	2.4	2.9	V	Vin=100mV, RS=68kΩ
AM						
Sensitivity	US	20	15		µV	When output is 20mVrms.
Output Voltage	Vo2	60	120	160	mVrms	1kHz, 30%, Vin=1mV
Distortion-1	THD2		1.0	2.0	%	1kHz, 30%, Vin=1mV
Distortion-2	THD3		2.0	4.0	%	1kHz, 30%, Vin=1mV
S/N	Vo1	40	48		dB	1kHz, 30%, Vin=1mV
AM OFF	Vo	-0.3		0.3	%	OFF

## 12) Transistor, Diode and LED Outline Drawings

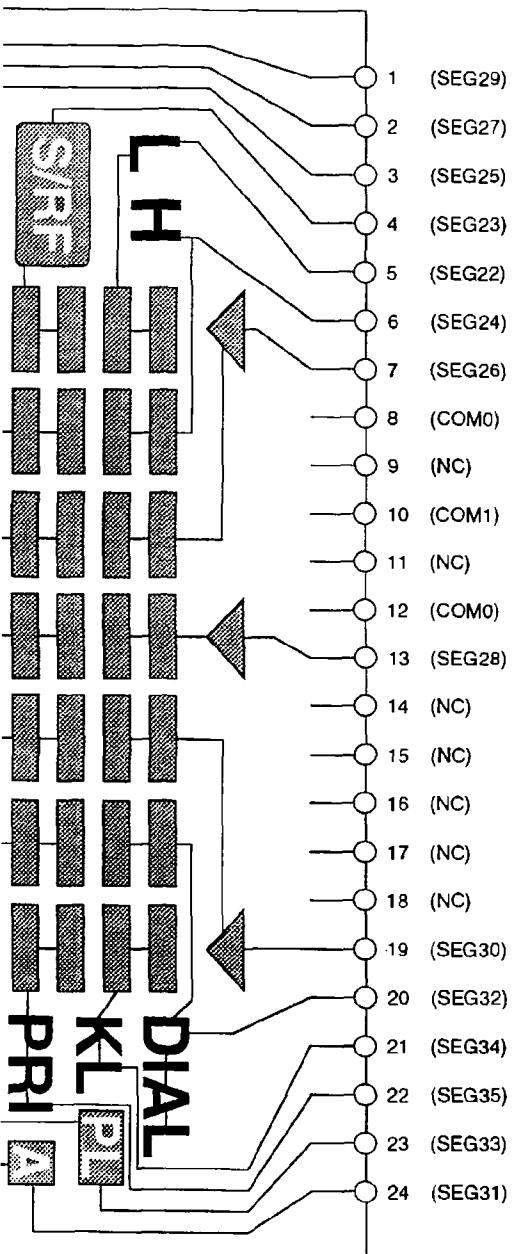
Top View

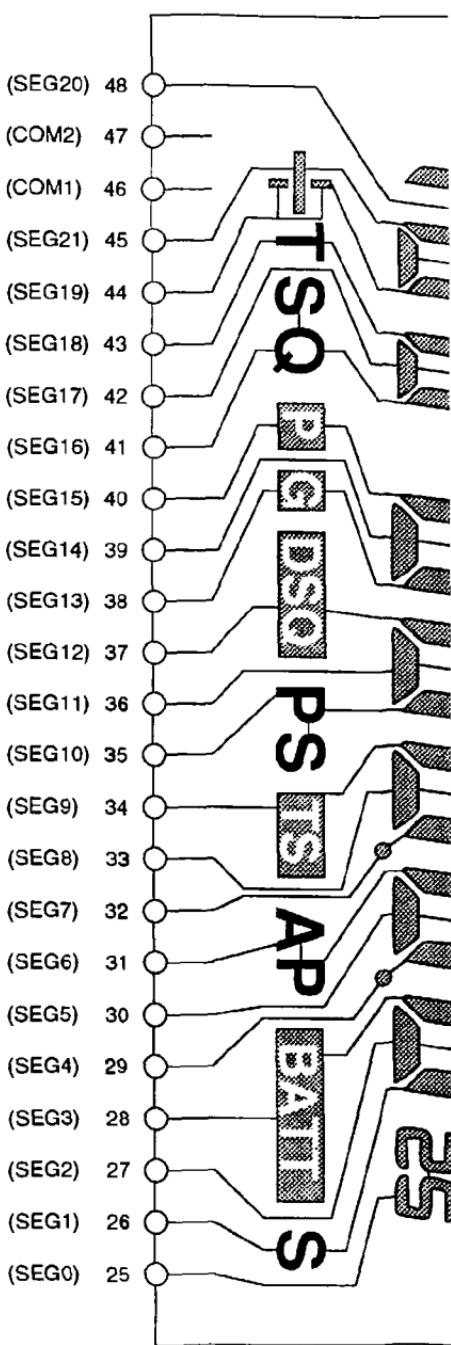
1SS318 XD0129	1SV215 XD0132	1SV229 XD0133	DA204U XD0130	DA227 XD0238	DAN235U XD0246	DAN202U XD0230	DAP202U XD0231
K	N20	M	N	R			
DE5SC4M XD0248	DTZ3.9B XD0158	DTZ6.2A XD0137	MA704TX XD0108	MA704WA XD0127	MA713TX XD0128	MA741WA XD0251	MA742 XD0250
5SC4	Z2	62	M1K	M2P	M1N	M2P	M1U
ALS135 XD0066	RN711H XD0257	U1BC44 XD0135					
2SA1213 XT0088	2SA1576 XT0094	2SC3356 XT0030	2SC4081 XT0095	2SC4226 XT0106	2SC4555 XT0109	2SC4617 XT0107	2SC4649 XT0108
C NY B C E	C FR B E	C R24 B E	C BR B E	C R24 B E	C UT6 B E	C BR B E	C JN B E
2SK360 XE0020	BRPG1201W XL0028	SLM-13MWS XL0016	UN511F XU0051	UN5211 XU0061	UN9111 XU0062	UN9211 XU0063	UN9216 XU0099
S GE D G			C 60 B E	C 8A B E	C 6A B E	C 8A B E	C 8F B E
UMA9 XU0049	UMC3 XU0047	UMG7 XU0153				UMW1 XU0048	
C1 C2 A9 B1 E B2	C1/B2 C2 C3 E1 B1 E2	C1/B2 C2 G7 B1 E1 E2	C1 C2 W1 B1 E B2				



### 13) LCD Connection (EL0023)

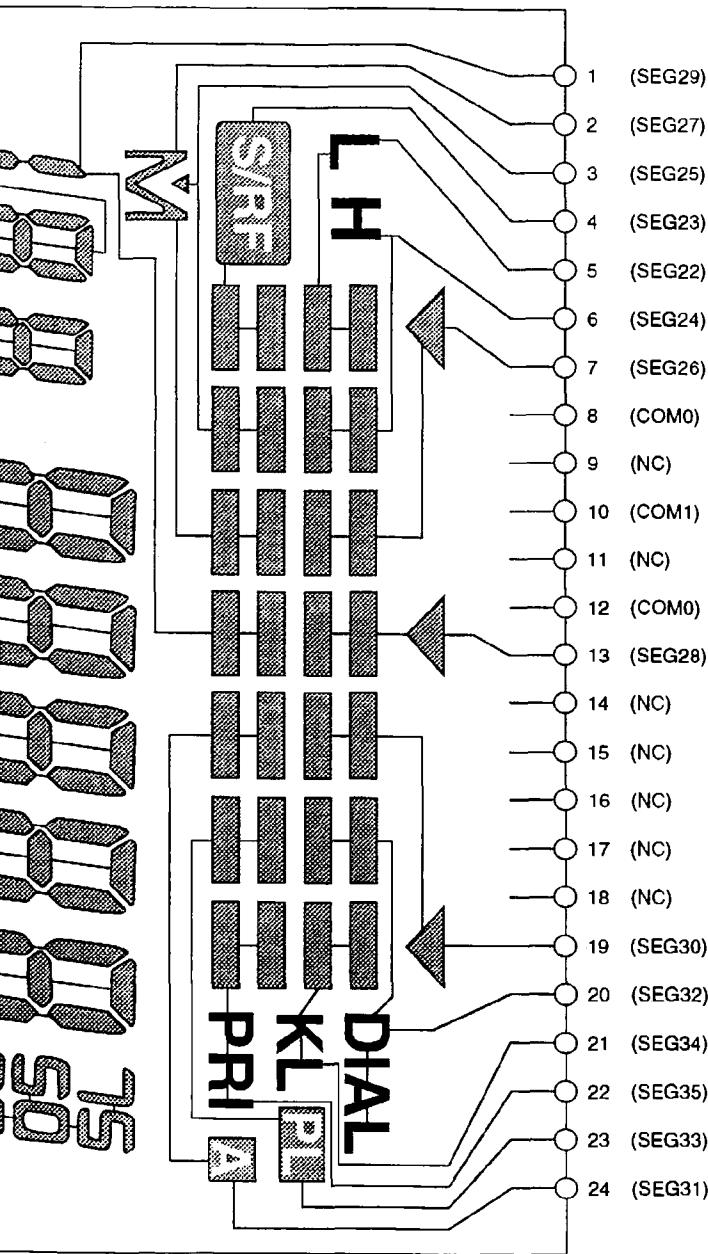
#### SEGMENT

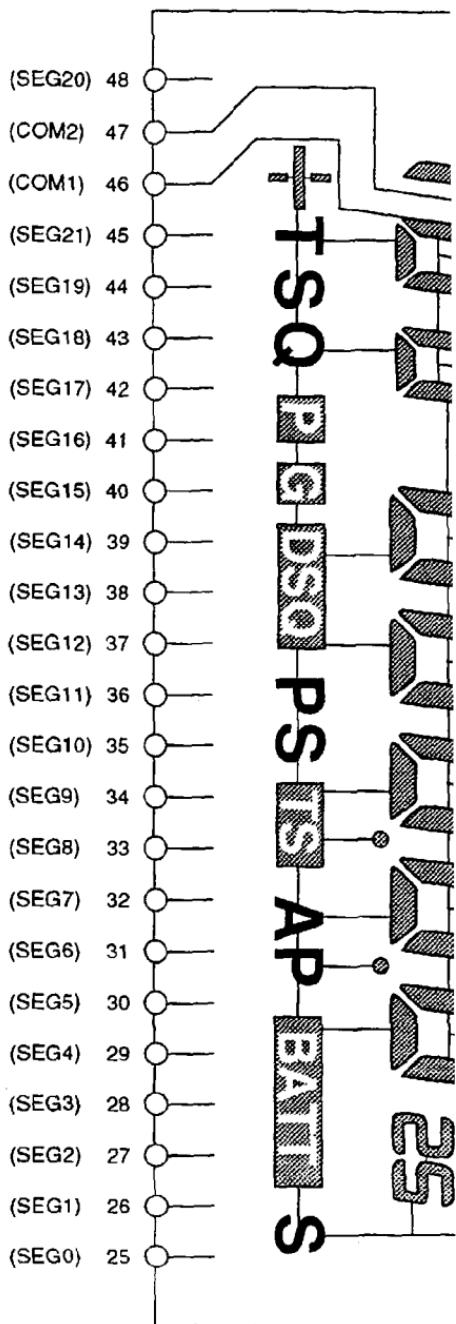


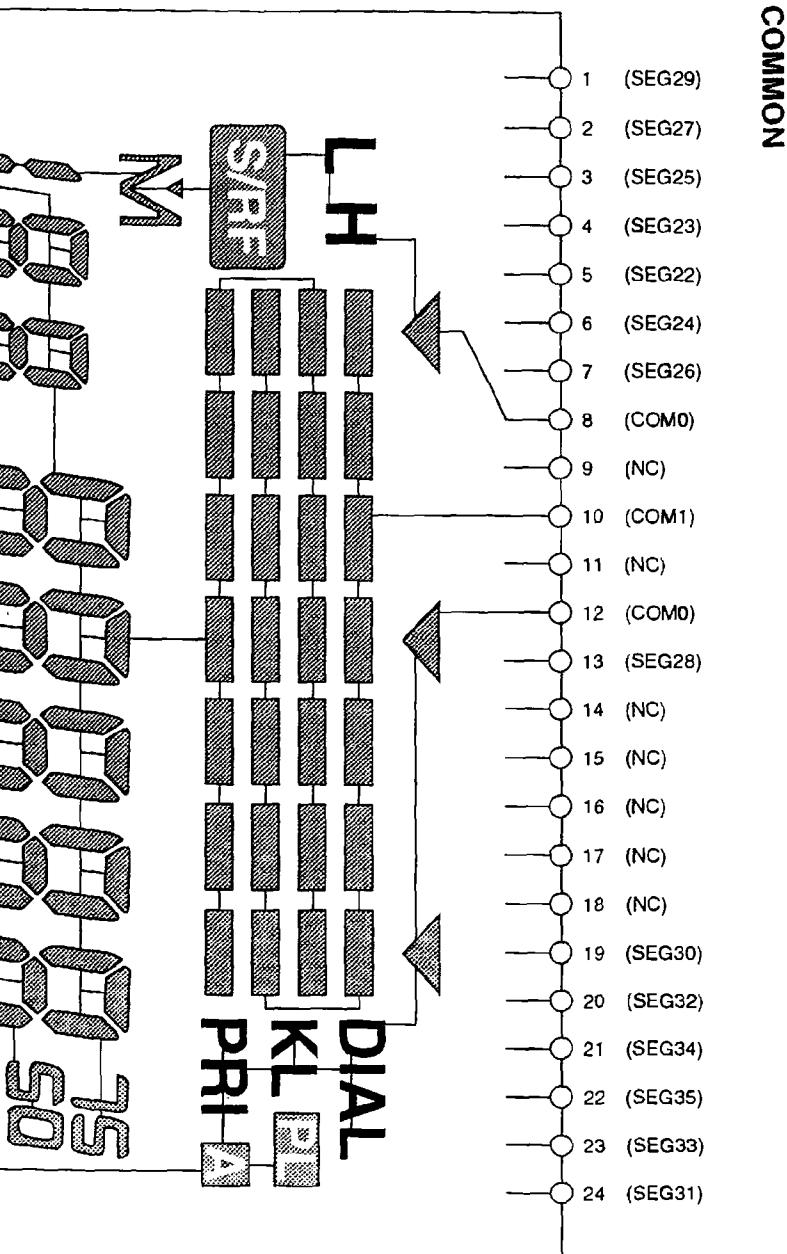


### 13) LCD Connection (EL0023)

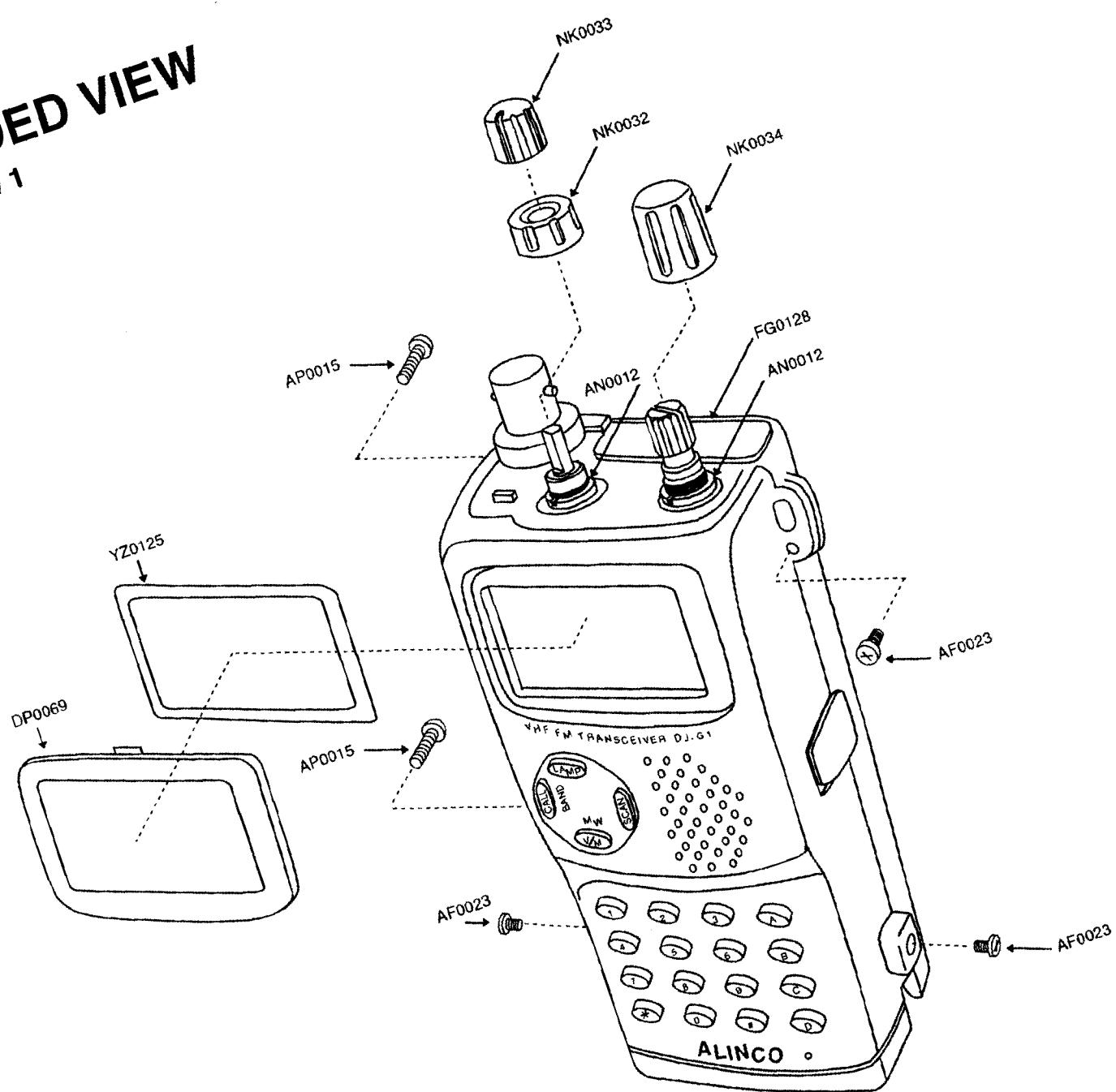
#### SEGMENT



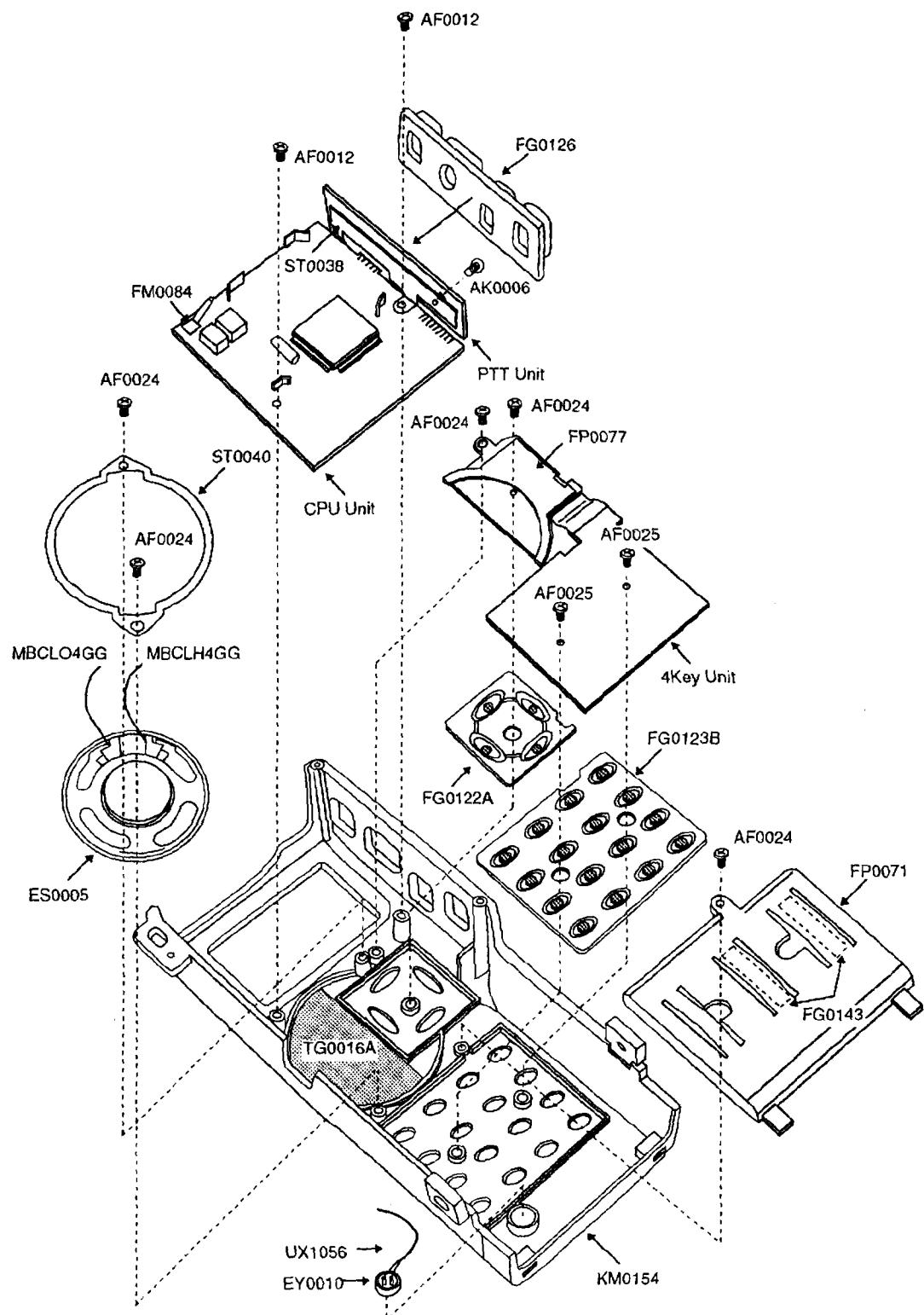




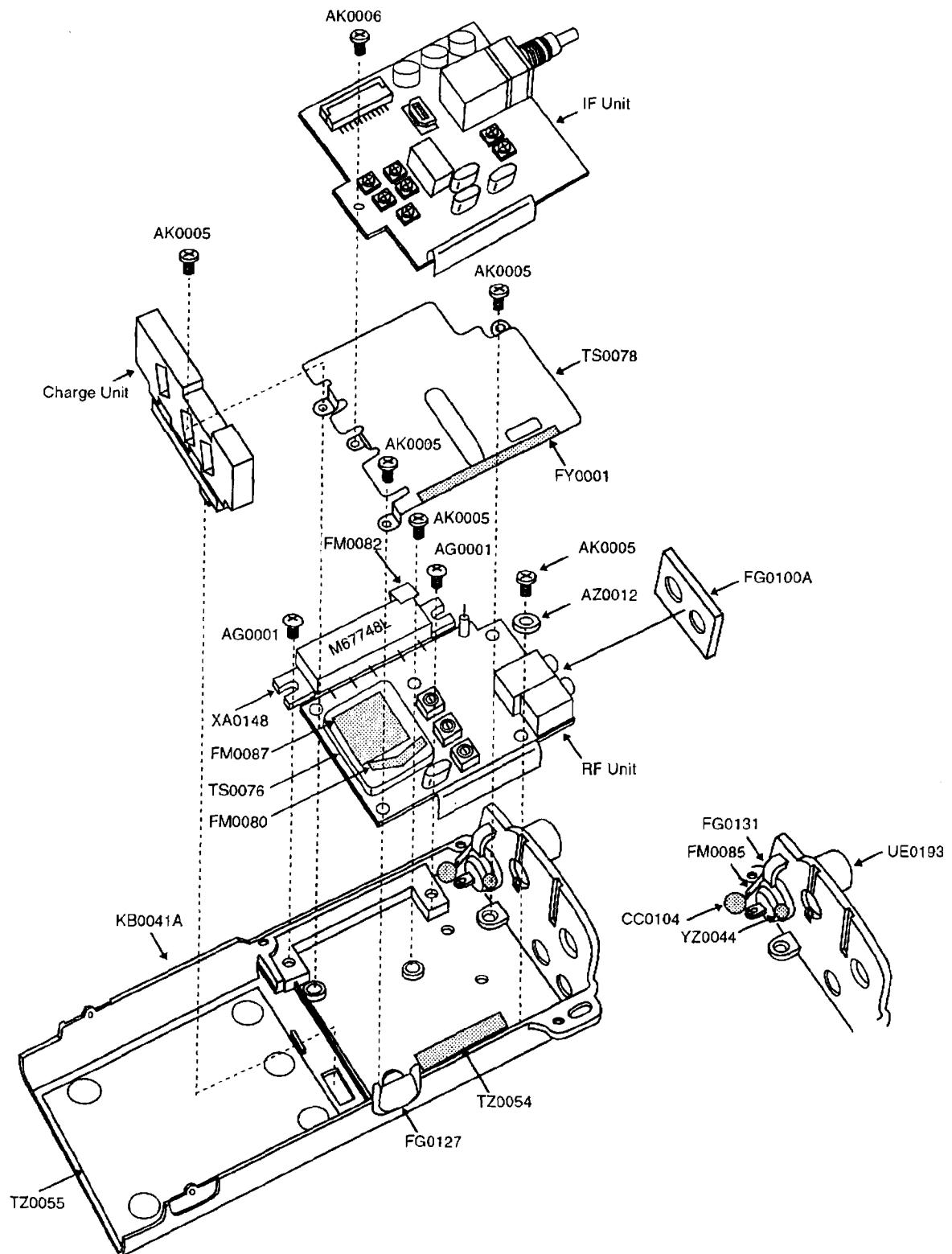
**EXPLODED VIEW**  
1) Front View 1



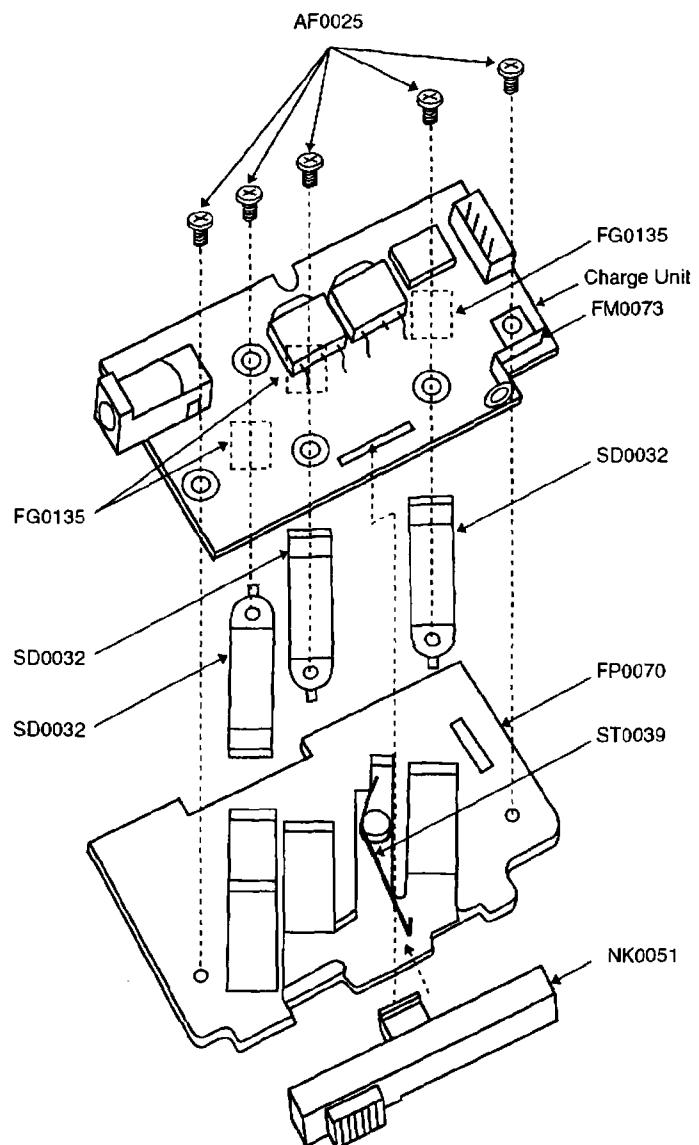
## 2) Front View 2



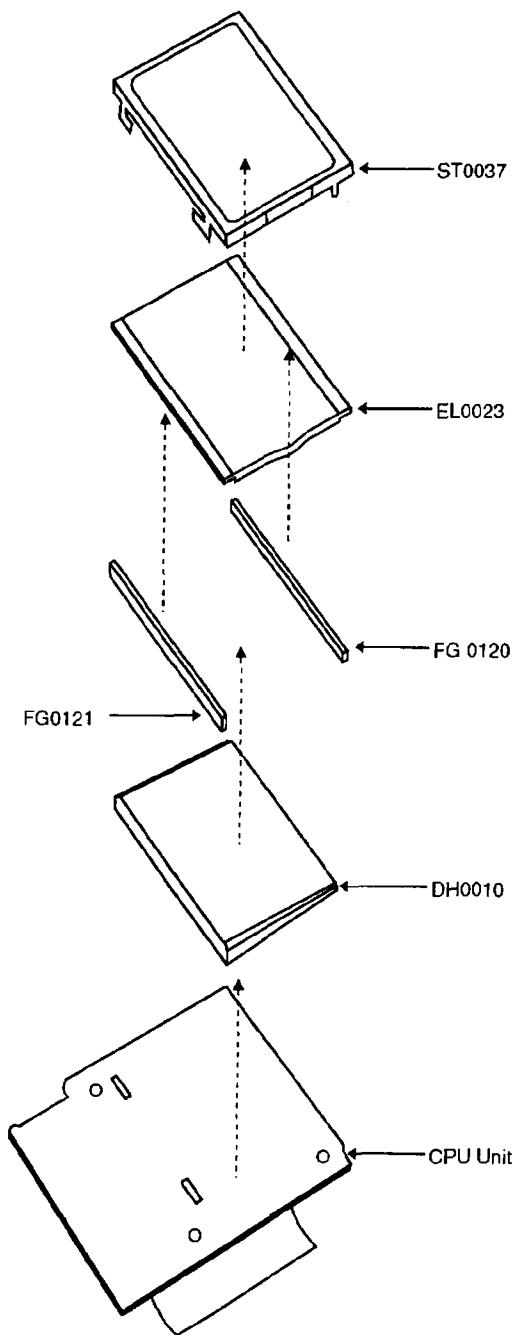
### 3) Rear View



#### 4) Charge Unit



## 5) LCD



# Parts List

RF Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
RF Unit							
C1	CC0104	Ceramic C.	50V 3pF CH	C54	----		----
C2	----		----	C55	----		----
C3	CU3016	Chip C.	C1608CH1H270JT-A	C56	----		----
C4	CU3009	Chip C.	C1608CH1H080CT-A	C57	CU3006	Chip C.	C1608CH1H050CT-A
C5	CU3020	Chip C.	C1608CH1H560JT-A	C58	CU3009	Chip C.	C1608CH1H080CT-A (T)
C6	CU3035	Chip C.	C1608JB1H102KT-A	C59	CU3008	Chip C.	C1608CH1H070CT-A (E)
C7	CU3019	Chip C.	C1608CH1H470JT-A	C60	CU3007	Chip C.	C1608CH1H060CT-A
C8	CU3035	Chip C.	C1608JB1H102KT-A	C61	CU3031	Chip C.	C1608JB1H471KT-A
C9	CU3059	Chip C.	C1608JF1E104ZT-A	C62	CU3031	Chip C.	C1608JB1H471KT-A
C10	CS0049	Chip Tantal	TMCSA1C105MTR	C63	CU3001	Chip C.	C1608CH1H0R5CT-A
C11	CU3003	Chip G.	C1608CH1H020CT-A	C64	CU3014	Chip C.	C1608CH1H180JT-A
C12	CU3003	Chip C.	C1608CH1H020CT-A	C65	CU3007	Chip C.	C1608CH1H060CT-A
C13	CU3035	Chip C.	C1608JB1H102KT-A	C66	CU3002	Chip C.	C1608CH1H010CT-A
C14	CU3035	Chip C.	C1608JB1H102KT-A	C67	CU3012	Chip C.	C1608CH1H120JT-A (E)
C15	CU3014	Chip C.	C1608CH1H180JT-A	C68	----		----
C16	CU3018	Chip C.	C1608CH1H390JT-A	C69	CU3012	Chip C.	C1608CH1H120JT-A (E)
C17	CU3003	Chip C.	C1608CH1H020CT-A	C70	CU3003	Chip C.	C1608CH1H020CT-A (E)
C18	CU3003	Chip C.	C1608CH1H020CT-A	C71	CU3027	Chip C.	C1608CH1H221JT-A (E)
C19	CU3035	Chip C.	C1608JB1H102KT-A	C72	CU3027	Chip C.	C1608CH1H221JT-A (E)
C20	CU3035	Chip C.	C1608JB1H102KT-A	C73	----		----
C21	CU3035	Chip C.	C1608JB1H102KT-A	C74	----		--- (T)
C22	CE0312	Electrolytic C.	ECEVA1C100R	C75	CU3004	Chip C.	C1608CH1H030CT-A (E)
C23	CS0237	Chip Tantal	TMCM1A475MTR	C76	----		----
C24	----		----	C77	CU3027	Chip C.	C1608CH1H221JT-A (E)
C25	CU3019	Chip C.	C1608CH1H470JT-A	C78	----		--- (T)
C26	CU3035	Chip C.	C1608JB1H102KT-A	C79	CU3002	Chip C.	C1608CH1H010CT-A
C27	CU3010	Chip C.	C1608CH1H090CT-A	C80	----		--- (T)
C28	CU3047	Chip C.	C1608JB1H103KT-A	C81	CU3027	Chip C.	C1608CH1H221JT-A (E)
C29	CU3004	Chip C.	C1608CH1H030CT-A	C82	CU3035	Chip C.	C1608JB1H102KT-A
C30	CU3035	Chip C.	C1608JB1H102KT-A	C83	CU3009	Chip C.	C1608CH1H080CT-A
C31	CU3006	Chip C.	C1608CH1H050CT-A	C84	CS0063	Chip Tantal	TMCSA1V104MTR
C32	CU3005	Chip C.	C1608CH1H040CT-A	C85	CS0237	Chip Tantal	TMCMA1A475MTR
C33	CU3009	Chip C.	C1608CH1H080CT-A	C86	CS0063	Chip Tantal	TMCSA1V104MTR
C34	----		----	C87	CU3002	Chip C.	C1608CH1H010CT-A
C35	CU3019	Chip C.	C1608CH1H470JT-A	C88	CU3011	Chip C.	C1608CH1H100DT-A
C36	CU3035	Chip C.	C1608JB1H102KT-A	C89	----		----
C37	CU3035	Chip C.	C1608JB1H102KT-A	C90	CU3014	Chip C.	C1608CH1H180JT-A
C38	CU3035	Chip C.	C1608JB1H102KT-A	C91	CU3018	Chip C.	C1608CH1H390JT-A
C39	CU3035	Chip C.	C1608JB1H102KT-A	C92	CS0057	Chip Tantal	TMCSA0J225MTR
C40	CU3035	Chip C.	C1608JB1H102KT-A	C93	CU3047	Chip C.	C1608JB1H103KT-A
C41	CU3002	Chip C.	C1608CH1H010CT-A	C94	CS0237	Chip Tantal	TMCMA1A475MTR
C42	CU3035	Chip C.	C1608JB1H102KT-A	C95	CU3035	Chip C.	C1608JB1H102KT-A
C43	CU3035	Chip C.	C1608JB1H102KT-A	C96	----		----
C44	CU3010	Chip C.	C1608CH1H090CT-A	C97	CS0049	Chip Tantal	TMCSA1C105MTR
C45	CU3002	Chip C.	C1608CH1H010CT-A	C98	CU3047	Chip C.	C1608JB1H103KT-A
C46	CU3035	Chip C.	C1608JB1H102KT-A	C99	CU3003	Chip C.	C1608CH1H020CT-A
C47	CU3035	Chip C.	C1608JB1H102KT-A	C100	CU3035	Chip C.	C1608JB1H102KT-A
C48	----		----	C101	CU3035	Chip C.	C1608JB1H102KT-A
C49	----		----				
C50	----		----				
C51	----		----				
C52	----		----				
C53	----		----				

## RF Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
C102	---		---	L7	---		---
C103	CU3035	Chip C.	C1608JB1H102KT-A	L8	QC0276	Coil	NL252018T-R10J
C104	CU3047	Chip C.	C1608JB1H103KT-A	L9	QC0276	Coil	NL252018T-R10J
C105	CU3031	Chip C.	C1608JB1H471KT-A	L10	QKA25A	Coil	MR1.5 2.5T 0.4
C106	---		---	L11	QKA25A	Coil	MR1.5 2.5T 0.4
C107	CU3003	Chip C.	C1608CH1H020CT-A	L12	QA0079	Coil	QA0079
C108	---		---	L13	QA0079	Coil	QA0079
C109	CU3015	Chip C.	C1608CH1H220JT-A	L14	---		---
C110	---		--- (T)	L15	QA0079	Coil	QA0079
	CU3003	Chip C.	C1608CH1H020CT-A (E)	L16	---		---
C111	---		---	L17	---		---
C112	---		---	L18	QC0267	Coil	NL252018T-018K (T)
C113	---		---	L19	QC0268	Coil	NL252018T-022K (E)
D1	XD0066	Diode	RLS135TE11	L20	QC0264	Coil	NL252018T-010K
D2	XD0129	Diode	1SS318 TT11	L21	QC0268	Coil	NL252018T-022K
D3	XD0127	Diode	MA704WATX	L22	QC0288	Coil	NL252018T-1R0J
D4	XD0158	Diode	DTZ3.9BTT11	Q1	XT0088	Transistor	2SA1213YTE12L
D5	XD0129	Diode	1SS318 TT11	Q2	XU0048	Transistor	UMW1TR
D6	XD0066	Diode	RLS135TE11	Q3	XT0030	Transistor	2SC3356-T1BR24/25
D7	XD0133	Diode	1SV229TPH3	Q4	XT0106	Transistor	2SC4226-T1
D8	XD0133	Diode	1SV229TPH3	Q5	---		---
D9	XD0129	Diode	1SS318 TT11	Q6	XE0020	FET	2SK360IGTER
D10	XD0133	Diode	1SV229TPH3	Q7	XU0153	Transistor	UMG7TR
D11	XD0133	Diode	1SV229TPH3	Q8	XT0106	Transistor	2SC4226-T1
D12	XD0129	Diode	1SS318 TT11	Q9	---		---
D13	XD0133	Diode	1SV229TPH3	Q10	---		---
D14	XD0133	Diode	1SV229TPH3	Q11	---		---
D15	XD0129	Diode	1SS318 TT11	Q12	XT0106	Transistor	2SC4226-T1
D16	XD0246	Diode	DAN235UT106	Q13	XT0106	Transistor	2SC4226-T1
D17	XD0246	Diode	DAN235UT106	Q14	---		--- (T)
D18	---		--- (T)	Q15	XT0100	Transistor	2SC3585-T1B (R/R44) (E)
D19	---		---	---	---		---
	XD0129	Diode	1SS318 TT11 (E)	Q16	XT0106	Transistor	2SC4226-T1 (E)
D20	XD0246	Diode	DAN235UT106	Q17	---		---
D21	XD0250	Diode	MA742-TX	Q18	XT0106	Transistor	2SC4226-T1 (E)
D22	XD0257	Diode	RN711H	Q19	XU0051	Transistor	UN511F-TX
D23	XD0246	Diode	DAN235UT106	Q20	XT0106	Transistor	2SC4226-T1
D24	---		--- (T)	Q21	XT0094	Transistor	2SA1576T106R
	XD0129	Diode	1SS318 TT11 (E)	Q22	---		---
IC1	XA0148	IC	M67748L	R1	RK3054	Chip R.	ERJ3GSYJ223V
IC2	XA0240	IC	MB1505PF-G-BND-TF	R2	---		---
JK1	UJ0022	Connector	HSJ1102-01-540	R3	RK3038	Chip R.	ERJ3GSYJ102V
JK2	UJ0019	Connector	HSJ1423-01-010	R4	RK3050	Chip R.	ERJ3GSYJ103V
L1	QKA55A	Coil	MR1.5 5.5T 0.4	R5	RK3054	Chip R.	ERJ3GSYJ223V
L2	QKA55A	Coil	MR1.5 5.5T 0.4	R6	RK3034	Chip R.	ERJ3GSYJ471V
L3	---		---	R7	RK3030	Chip R.	ERJ3GSYJ221V
L4	QKA65A	Coil	MR1.5 6.5T 0.4	R8	RK3050	Chip R.	ERJ3GSYJ103V
L5	QC0292	Coil	NL252018T-2R2J	R9	RK3050	Chip R.	ERJ3GSYJ103V
L6	QKA55A	Coil	MR1.5 5.5T 0.4	R10	RK3050	Chip R.	ERJ3GSYJ103V
				R11	RK3034	Chip R.	ERJ3GSYJ471V
				R12	RK3026	Chip R.	ERJ3GSYJ101V

## RF Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
R13	RK3050	Chip R.	ERJ3GSYJ103V		RK3026	Chip R.	ERJ3GSYJ101V (E)
R14	RK3046	Chip R.	ERJ3GSYJ472V	R62	---	---	(T)
R15	RK3026	Chip R.	ERJ3GSYJ101V		RK3031	Chip R.	ERJ3GSYJ271V (E)
R16	RK3043	Chip R.	ERJ3GSYJ272V	R63	---	---	(T)
R17	RK3040	Chip R.	ERJ3GSYJ152V		RK3061	Chip R.	ERJ3GSYJ823V (E)
R18	RK3038	Chip R.	ERJ3GSYJ102V	R64	---	---	(T)
R19	---	---	---		RK3038	Chip R.	ERJ3GSYJ102V (E)
R20	---	---	---	R65	RK3046	Chip R.	ERJ3GSYJ472V
R21	RK3073	Chip R.	ERJ3GSYJ824V	R66	RK3030	Chip R.	ERJ3GSYJ221V
R22	RK3046	Chip R.	ERJ3GSYJ472V	R67	RK3054	Chip R.	ERJ3GSYJ223V
R23	RK3026	Chip R.	ERJ3GSYJ101V	R68	RK3050	Chip R.	ERJ3GSYJ103V
R24	RK3026	Chip R.	ERJ3GSYJ101V	R69	RK3046	Chip R.	ERJ3GSYJ472V
R25	RK3026	Chip R.	ERJ3GSYJ101V	R70	RK3038	Chip R.	ERJ3GSYJ102V
R26	RK3073	Chip R.	ERJ3GSYJ824V	R71	RK3037	Chip R.	ERJ3GSYJ821V
R27	RK3052	Chip R.	ERJ3GSYJ153V	R72	RK3043	Chip R.	ERJ3GSYJ272V
R28	RK3050	Chip R.	ERJ3GSYJ103V	R73	RK3042	Chip R.	ERJ3GSYJ222V
R29	RK3073	Chip R.	ERJ3GSYJ824V	R74	RK3059	Chip R.	ERJ3GSYJ563V
R30	RK3050	Chip R.	ERJ3GSYJ103V	R75	RK3037	Chip R.	ERJ3GSYJ821V
R31	RK3049	Chip R.	ERJ3GSYJ822V	R76	RK3040	Chip R.	ERJ3GSYJ152V
R32	RK3056	Chip R.	ERJ3GSYJ333V	R77	RK3058	Chip R.	ERJ3GSYJ473V
R33	RK3026	Chip R.	ERJ3GSYJ101V	R78	RK3064	Chip R.	ERJ3GSYJ154V
R34	RK3038	Chip R.	ERJ3GSYJ102V	R79	RK3050	Chip R.	ERJ3GSYJ103V
R35	---	---	---	R80	RK3050	Chip R.	ERJ3GSYJ103V
R36	---	---	---	R81	RK3050	Chip R.	ERJ3GSYJ103V
R37	RK3062	Chip R.	ERJ3GSYJ104V	R82	RK1018	Chip R.	ERJ8GEYJ101V
R38	RK3046	Chip R.	ERJ3GSYJ472V	R83	RK3026	Chip R.	ERJ3GSYJ101V
R39	---	---	---	R84	RK3018	Chip R.	ERJ3GSYJ220V
R40	---	---	---	R85	---	---	---
R41	---	---	---	R86	RK3054	Chip R.	ERJ3GSYJ223V
R42	---	---	---	R87	RK3050	Chip R.	ERJ3GSYJ103V
R43	---	---	---	R88	---	---	(T)
R44	---	---	---		RK3001	Chip R.	ERJ3GSYJ0R00V (E)
R45	---	---	---	R89	RD0108	---	JPW01 R-01
R46	---	---	---	R90	RK3024	Chip R.	ERJ3GSYJ680V
R47	RK3038	Chip R.	ERJ3GSYJ102V	R91	RK3029	Chip R.	ERJ3GSYJ181V
R48	RK3050	Chip R.	ERJ3GSYJ103V	TC1	CT0012	Trimmer	CTZ-10AW
R49	RK3014	Chip R.	ERJ3GSYJ100V				
R50	RK3056	Chip R.	ERJ3GSYJ333V	W1	UX1043	Wire	DJG10 W1
R51	RK3026	Chip R.	ERJ3GSYJ101V				
R52	RK3038	Chip R.	ERJ3GSYJ102V	X1	XQ0060	Crystal	UM5 12.8MHz
R53	RK3056	Chip R.	ERJ3GSYJ333V				
R54	RK3048	Chip R.	ERJ3GSYJ682V		FM0082	Module Ground	
R55	---	---	(T)		TZ0049	Silicon Dumper	
	RK3038	Chip R.	ERJ3GSYJ102V (E)		TZ0054	Insulator	
R56	---	---	---		UP0231C	DJG10RF P.C.B.	
R57	---	---	(T)		UP0237	Flexible Printed Circuit Board	
	RK3063	Chip R.	ERJ3GSYJ124V (E)				
R58	---	---	(T)				
	RK3034	Chip R.	ERJ3GSYJ471V (E)				
R59	---	---	(T)				
	RK3022	Chip R.	ERJ3GSYJ470V (E)				
R60	---	---	(T)				
	RK3056	Chip R.	ERJ3GSYJ333V (E)				
R61	---	---	(T)				

## IF Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
<b>IF Unit</b>							
C301	---		---	C354	CU3047	Chip C.	C1608JB1H103KT-A
C302	---		---	C355	CE0307	Electrolytic.C	ECEVA0JA470P
C303	---		---	C356	CU3035	Chip C.	C1608JB1H102KT-A
C304	---		---	C357	CU3059	Chip C.	C1608JF1E104ZT-A
C305	---		---	C358	CU3059	Chip C.	C1608JF1E104ZT-A
C306	---		---	C359	CU3059	Chip C.	C1608JF1E104ZT-A
C307	---		---	C360	CU3059	Chip C.	C1608JF1E104ZT-A
C308	---		---	C361	CU3047	Chip C.	C1608JB1H103KT-A
C309	CU3047	Chip C.	C1608JB1H103KT-A	C362	CU3035	Chip C.	C1608JB1H102KT-A
C310	CU3047	Chip C.	C1608JB1H103KT-A	C363	CU3023	Chip C.	C1608CH1H101JT-A
C311	CE0307	Electrolytic.C	ECEVA0JA470P	C364	CU3043	Chip C.	C1608JB1H472KT-A
C312	CE0307	Electrolytic.C	ECEVA0JA470P	C365	---	---	---
C313	CS0049	Chip Tantal	TMCSA1C105MTR	C366	CU3059	Chip C.	C1608JF1E104ZT-A
C314	CU3059	Chip C.	C1608JF1E104ZT-A	C367	CU3035	Chip C.	C1608JB1H102KT-A
C315	CU3047	Chip C.	C1608JB1H103KT-A	C368	CU3029	Chip C.	C1608JB1H331KT-A
C316	CS0049	Chip Tantal	TMCSA1C105MTR	C369	CU3059	Chip C.	C1608JF1E104ZT-A
C317	CU3031	Chip C.	C1608JB1H471KT-A	C370	CU3059	Chip C.	C1608JF1E104ZT-A
C318	CU3035	Chip C.	C1608JB1H102KT-A	C371	CU3039	Chip C.	C1608JB1H222KT-A
C319	CS0060	Chip Tantal	TMCSA1E474MTR	C372	CU3047	Chip C.	C1608JB1H103KT-A
C320	CU3059	Chip C.	C1608JF1E104ZT-A	C373	CS0216	Chip Tantal	TMCMB1A106MTR
C321	CU3047	Chip C.	C1608JB1H103KT-A	C374	CU3021	Chip C.	C1608CH1H680JT-A
C322	CU3035	Chip C.	C1608JB1H102KT-A	C375	CS0063	Chip Tantal	TMCSA1V104MTR
C323	CU3035	Chip C.	C1608JB1H102KT-A	C376	CS0049	Chip Tantal	TMCSA1C105MTR
C324	CU3031	Chip C.	C1608JB1H471KT-A	C377	CU3051	Chip C.	C1608JB1E223KT-A
C325	CU3023	Chip C.	C1608CH1H101JT-A	C378	CU3051	Chip C.	C1608JB1E223KT-A
C326	CU3059	Chip C.	C1608JF1E104ZT-A	C379	CU3051	Chip C.	C1608JB1E223KT-A
C327	CS0366	Chip Tantal	TMCMA0G106MTR	C380	---	---	---
C328	CU3053	Chip C.	C1608JF1E333ZT-A	C381	---	---	---
C329	CU3007	Chip C.	C1608CH1H060CT-A	C382	---	---	---
C330	CU3012	Chip C.	C1608CH1H120JT-A	C383	---	---	---
C331	CU3059	Chip C.	C1608JF1E104ZT-A	C384	CE0350	Electrolytic.C	16MV100HC
C332	CU3059	Chip C.	C1608JF1E104ZT-A	C385	CU3059	Chip C.	C1608JF1E104ZT-A
C333	CU3059	Chip C.	C1608JF1E104ZT-A	C386	CU3031	Chip C.	C1608JB1H471KT-A
C334	CU3019	Chip C.	C1608CH1H470JT-A	C387	CU3047	Chip C.	C1608JB1H103KT-A
C335	CU3047	Chip C.	C1608JB1H103KT-A	C388	CU3059	Chip C.	C1608JF1E104ZT-A
C336	CU3047	Chip C.	C1608JB1H103KT-A	C389	CU3012	Chip C.	C1608CH1H120JT-A
C337	CU3035	Chip C.	C1608JB1H102KT-A	C390	---	---	---
C338	CS0063	Chip Tantal	TMCSA1V104MTR	C391	---	---	---
C339	CU3047	Chip C.	C1608JB1H103KT-A	C392	---	---	---
C340	CS0211	Chip Tantal	TMCMC0J336MTR	C393	CU3047	Chip C.	C1608JB1H103KT-A
C341	CU3047	Chip C.	C1608JB1H103KT-A	C394	CS0236	Chip Tantal	TMCMA0J685MTR
C342	CS0237	Chip Tantal	TMCMA1A475MTR	C395	CU3059	Chip C.	C1608JF1E104ZT-A
C343	CU3059	Chip C.	C1608JF1E104ZT-A	C396	CU3047	Chip C.	C1608JB1H103KT-A
C344	CU3059	Chip C.	C1608JF1E104ZT-A	C397	CU3047	Chip C.	C1608JB1H103KT-A
C345	CU3047	Chip C.	C1608JB1H103KT-A	C398	CU3047	Chip C.	C1608JB1H103KT-A
C346	CU3047	Chip C.	C1608JB1H103KT-A	C399	CU3059	Chip C.	C1608JF1E104ZT-A
C347	CU3047	Chip C.	C1608JB1H103KT-A	CN301	UE0159	Connector	87768-024
C348	CU3051	Chip C.	C1608JB1E223KT-A	CN302	UE0129	Connector	DF9A9S-1V (22)
C349	CU3059	Chip C.	C1608JF1E104ZT-A	D301	XD0137	Diode	DTZ6.2ATT11
C350	CU3047	Chip C.	C1608JB1H103KT-A	D302	XD0250	Diode	MA742-TX
C351	CU3047	Chip C.	C1608JB1H103KT-A	D303	XL0028	LED	BRPG1201W-TR
C352	CU3049	Chip C.	C1608JB1E153KT-A	D304	XD0129	Diode	1SS318 TT11
C353	CU3047	Chip C.	C1608JB1H103KT-A				

## IF Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
D305	---		---	R313	RK3038	Chip R.	ERJ3GSYJ102V
D306	XL0128	Diode	MA713TX	R314	RK3062	Chip R.	ERJ3GSYJ104V
FL301	XC0004	Filter	CFUM455E	R315	RK3056	Chip R.	ERJ3GSYJ333V
FL302	XF0014	Filter	30.850MHz 30M15B9	R316	RK3070	Chip R.	ERJ3GSYJ474V
IC301	XA0223	IC	TK10930VTL	R317	RK3051	Chip R.	ERJ3GSYJ123V
IC302	XA0246	IC	BU4094BF-T1	R318	RK3062	Chip R.	ERJ3GSYJ104V
IC303	XA0246	IC	BU4094BF-T1	R319	RK3050	Chip R.	ERJ3GSYJ103V
IC304	XA0068	IC	M5218FP-T01-1	R320	RK3054	Chip R.	ERJ3GSYJ223V
IC305	XA0061	IC	NJM386M-T1	R321	RK3050	Chip R.	ERJ3GSYJ103V
IC306	XA0217	IC	M5237ML-600C	R322	RK3045	Chip R.	ERJ3GSYJ392V
L301	QC0292	Coil	NL252018T-2R2J	R323	RK3038	Chip R.	ERJ3GSYJ102V
Q301	XT0108	Transistor	2SC4649TL	R324	RK3050	Chip R.	ERJ3GSYJ103V
Q302	XT0088	Transistor	2SA1213YTE12L	R325	RK3068	Chip R.	ERJ3GSYJ334V
Q303	XT0107	Transistor	2SC4617TL	R326	RK3038	Chip R.	ERJ3GSYJ102V
Q304	XU0063	Transistor	UN9211	R327	RK3062	Chip R.	ERJ3GSYJ104V
Q305	XT0107	Transistor	2SC4617TL	R328	RK3054	Chip R.	ERJ3GSYJ223V
Q306	XT0107	Transistor	2SC4617TL	R329	RK3042	Chip R.	ERJ3GSYJ222V
Q307	XT0107	Transistor	2SC4617TL	R330	RK3044	Chip R.	ERJ3GSYJ332V
Q308	XU0047	Transistor	UMC3TR	R331	RK3044	Chip R.	ERJ3GSYJ332V
Q309	XU0063	Transistor	UN9211	R332	RK3048	Chip R.	ERJ3GSYJ682V
Q310	XT0107	Transistor	2SC4617TL	R333	RK3042	Chip R.	ERJ3GSYJ222V
Q311	XU0099	Transistor	UN9216	R334	RK3046	Chip R.	ERJ3GSYJ472V
Q312	XT0088	Transistor	2SA1213YTE12L	R335	RK3070	Chip R.	ERJ3GSYJ474V
Q313	XT0107	Transistor	2SC4617TL	R336	RK3042	Chip R.	ERJ3GSYJ222V
Q314	XT0107	Transistor	2SC4617TL	R337	RK3042	Chip R.	ERJ3GSYJ222V
Q315	XU0047	Transistor	UMC3TR	R338	RK3030	Chip R.	ERJ3GSYJ221V
Q316	XU0063	Transistor	UN9211	R339	RK3046	Chip R.	ERJ3GSYJ472V
Q317	XU0049	Transistor	UMA9TR	R340	RK3070	Chip R.	ERJ3GSYJ474V
Q318	XU0062	Transistor	UN9111	R341	RK3026	Chip R.	ERJ3GSYJ101V
Q319	XU0049	Transistor	UMA9TR	R342	---	---	---
Q320	XU0049	Transistor	UMA9TR	R343	RK3068	Chip R.	ERJ3GSYJ334V
Q321	XU0049	Transistor	UMA9TR	R344	RK3042	Chip R.	ERJ3GSYJ222V
Q322	XU0063	Transistor	UN9211	R345	RK3069	Chip R.	ERJ3GSYJ394V
Q323	XU0062	Transistor	UN9111	R346	RK3048	Chip R.	ERJ3GSYJ682V
Q324	XU0063	Transistor	UN9211	R347	RK3038	Chip R.	ERJ3GSYJ102V
Q325	XU0062	Transistor	UN9111	R348	RK3055	Chip R.	ERJ3GSYJ273V
Q326	XT0107	Transistor	2SC4617TL	R349	RK3050	Chip R.	ERJ3GSYJ103V
R301	RK3036	Chip R.	ERJ3GSYJ681V	R350	RK3062	Chip R.	ERJ3GSYJ104V
R302	RK3026	Chip R.	ERJ3GSYJ101V	R351	RK3050	Chip R.	ERJ3GSYJ103V
R303	RK3036	Chip R.	ERJ3GSYJ681V	R352	RK3044	Chip R.	ERJ3GSYJ332V
R304	RK3069	Chip R.	ERJ3GSYJ394V	R353	RK3030	Chip R.	ERJ3GSYJ221V
R305	RK3038	Chip R.	ERJ3GSYJ102V	R354	RK3034	Chip R.	ERJ3GSYJ471V
R306	RK3056	Chip R.	ERJ3GSYJ333V	R355	RK0105	Chip R.	ERJ6GSYJ2R2V
R307	RK0105	Chip R.	ERJ6GEYJ2R2V	R356	RK3071	Chip R.	ERJ3GSYJ564V
R308	RK3050	Chip R.	ERJ3GSYJ103V	R357	RK3041	Chip R.	ERJ3GSYJ182V
R309	RK3043	Chip R.	ERJ3GSYJ272V	R358	RK3073	Chip R.	ERJ3GSYJ824V
R310	RK3026	Chip R.	ERJ3GSYJ101V	R359	RK3062	Chip R.	ERJ3GSYJ104V
R311	RK3014	Chip R.	ERJ3GSYJ100V	R360	RK3062	Chip R.	ERJ3GSYJ104V
R312	RK3060	Chip R.	ERJ3GSYJ683V	R361	RK3063	Chip R.	ERJ3GSYJ124V
				R362	---	---	---
				R363	RK3043	Chip R.	ERJ3GSYJ272V
				R364	RK3058	Chip R.	ERJ3GSYJ473V
				R365	RK3050	Chip R.	ERJ3GSYJ103V
				R366	RK3062	Chip R.	ERJ3GSYJ104V

## IF Unit/CPU Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
				CPU Unit			
R367	RK3057	Chip R.	ERJ3GSYJ393V	C401	---	---	---
R368	RK3058	Chip R.	ERJ3GSYJ473V	C402	---	---	---
R369	RK3061	Chip R.	ERJ3GSYJ823V	C403	CU3035	Chip C.	C1608JB1H102KT-A
R370	RK3067	Chip R.	ERJ3GSYJ274V	C404	CU3035	Chip C.	C1608JB1H102KT-A
R371	RK3034	Chip R.	ERJ3GSYJ471V	C405	---	---	---
R372	RK3056	Chip R.	ERJ3GSYJ333V	C406	CS0333	Chip Tantal	ECST0JV686R
R373	RK3056	Chip R.	ERJ3GSYJ333V	C407	CS0333	Chip Tantal	ECST0JV686R
R374	RK3066	Chip R.	ERJ3GSYJ224V	C408	CU3085	Chip C.	C1608CH1H300JT-A
R375	RK3056	Chip R.	ERJ3GSYJ333V	C409	CU3085	Chip C.	C1608CH1H300JT-A
R376	RK3056	Chip R.	ERJ3GSYJ333V	C410	CU3035	Chip C.	C1608JB1H102KT-A
R377	RK3058	Chip R.	ERJ3GSYJ473V	C411	CS0064	Chip Tantal	TMCSA1A155MTR
R378	RK3050	Chip R.	ERJ3GSYJ103V	C412	CU3059	Chip C.	C1608JF1E104ZT-A
R379	RK3034	Chip R.	ERJ3GSYJ471V	C413	CU3035	Chip C.	C1608JB1H102KT-A
R380	---	---	---	C414	CS0049	Chip Tantal	TMCSA1C105MTR
R381	RK3026	Chip R.	ERJ3GSYJ101V	C415	CU3031	Chip C.	C1608JB1H471KT-A
R382	RK3038	Chip R.	ERJ3GSYJ102V	C416	---	---	---
R383	RK3001	Chip R.	ERJ3GSYJ000V	C417	---	---	---
R384	---	---	---	C418	CU3051	Chip C.	C1608JB1E223KT-A
R385	---	---	---	C419	CU3051	Chip C.	C1608JB1E223KT-A
R386	---	---	---	C420	CU3059	Chip C.	C1608JF1E104ZT
R387	RK3066	Chip R.	ERJ3GSYJ224V	C421	CU3085	Chip C.	C1608CH1H300JT-A
R388	RK3042	Chip R.	ERJ3GSYJ222V	C422	CU3085	Chip C.	C1608CH1H300JT-A
R389	---	---	---	C423	CU3059	Chip C.	C1608JF1E104ZT-A
R390	RK3028	Chip R.	ERJ3GSYJ151V	C424	CU3035	Chip C.	C1608JB1H102KT-A
R391	RK3032	Chip R.	ERJ3GSYJ331V	C425	CU3035	Chip C.	C1608JB1H102KT-A
R392	RK3032	Chip R.	ERJ3GSYJ331V	C426	CU3035	Chip C.	C1608JB1H102KT-A
R393	RK3050	Chip R.	ERJ3GSYJ103V	C427	---	---	---
R394	RK3074	Chip R.	ERJ3GSYJ105V	C428	---	---	---
R395	RK3026	Chip R.	ERJ3GSYJ101V	C429	---	---	---
VR301	---	---	---	C430	---	---	---
VR302	---	---	---	C431	CU3019	Chip C.	C1608CH1H470JT-A
VR303	RH0103	VR	EVM1YSX50B14	C432	CU3019	Chip C.	C1608CH1H470JT-A
VR304	RH0103	VR	EVM1YSX50B14	C433	---	---	---
VR305	RH0103	VR	EVM1YSX50B14	C434	---	---	---
VR306	RH0103	VR	EVM1YSX50B14	C435	---	---	---
VR307	RH0103	VR	EVM1YSX50B14	C436	---	---	---
VR308	RH0099	VR	EVM1YSX50BE3	C437	---	---	---
VR309	---	---	---	C438	CU3051	Chip C.	C1608JB1E223KT-A
VR310	RH0108	VR	EVM1YSX50B15	C439	CU3023	Chip C.	C1608CH1H101JT-A
VR311	RV0014	VR	RK09722115 R 1211	C440	---	---	---
X301	---	---	---	C441	CS0069	Chip Tantal	TMCSA1V154MTR
X302	---	---	---	C442	CS0057	Chip Tantal	TMCSA0J225MTR
X303	XQ0058	Crystal	UM5-30.395MHzMF	D401	XD0108	Diode	MA704TX
X304	XK0002		CDBM455C7	D402	XD0251	Diode	MA741WATX
	TZ0049		Silicon Dumper	D403	XL0016	LED	SLM-13MWT96B
	UP0230A		DJG10IF P.C.B.	D404	XL0016	LED	SLM-13MWT96B
				D405	---	---	---
				D406	---	---	---
				D407	XD0231	Diode	DAP202UT106
				D408	XD0231	Diode	DAP202UT106
				D409	---	---	---
				D410	XD0231	Diode	DAP202UT106

CPU Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
D411	XD0238	Diode	DA227TL	R430	RK3062	Chip. R	ERJ3GSYJ104V
D412	XD0238	Diode	DA227TL	R431	RK3058	Chip. R	ERJ3GSYJ473V
D413	XD0238	Diode	DA227TL	R432	---	---	---
D414	XL0129	Diode	1SS318 TT11	R433	RK3038	Chip. R	ERJ3GSYJ102V
D415	XD0137	Diode	DTZ6.2ATT-11	R434	RK3052	Chip. R	ERJ3GSYJ153V
D416	XD0137	Diode	DTZ6.2ATT-11	R435	RK3057	Chip. R	ERJ3GSYJ393V
IC401	XA0276	IC	HD404629A39H	R436	RK3058	Chip. R	ERJ3GSYJ473V
IC402	XA0231	IC	CM8870CFIT	R437	RA0010	---	EXBV8V472JV
IC403	XA0232	IC	RN5VL45CTL	R438	RK3046	Chip. R	ERJ3GSYJ472V
IC404	XA0226	IC	X24C08S14-3.0T	R439	---	---	---
LCD	EL0023	LCD	LCD DJG10	R440	RA0011	---	EXBV8V103JV
MC401	EY0010	Mic	WM-62A	R441	---	---	---
Q401	XU0061	Transistor	UN5211TX	R442	---	---	---
Q402	XT0095	Transistor	2SC4081T106R	R443	RK3001	Chip. R	ERJ3GSY000V
Q403	XT0094	Transistor	2SA1576T106R	R444	---	---	---
Q404	XT0109	Transistor	2SC4555-6-TL	R445	RK3062	Chip. R	ERJ3GSYJ104V
Q405	XU0061	Transistor	UN5211-TX	R446	RK3062	Chip. R	ERJ3GSYJ104V
Q406	XT0095	Transistor	2SC4081T106R	R447	RK3068	Chip. R	ERJ3GSYJ334V
Q407	XU0061	Transistor	UN5211TX	R448	RK3058	Chip. R	ERJ3GSYJ473V
R401	---	---	---	R449	---	---	---
R402	RK3062	Chip. R	ERJ3GSYJ104V	R450	---	---	---
R403	RK3062	Chip. R	ERJ3GSYJ104V	R451	RA0009	---	EXBV8V102JV
R404	RK3062	Chip. R	ERJ3GSYJ104V	R452	RA0009	---	EXBV8V102JV
R405	RK3062	Chip. R	ERJ3GSYJ104V	R453	RA0010	---	EXBV8V472JV
R406	---	---	---	R454	---	---	---
R407	---	---	---	R455	---	---	---
R408	---	---	---	R456	RK3058	Chip. R	ERJ3GSYJ473V
R409	---	---	---	R457	RK3058	Chip. R	ERJ3GSYJ473V
R410	RK3056	Chip. R	ERJ3GSYJ333V (T)	R458	RK3062	Chip. R	ERJ3GSYJ104V
	RK3054	Chip. R	ERJ3GSYJ223V (E)	R459	RK3050	Chip. R	ERJ3GSYJ103V
R411	---	---	(T)	R460	RA0011	---	EXBV8V103JV
	RK3054	Chip. R	ERJ3GSYJ223V (E)	R461	RK3046	Chip. R	ERJ3GSYJ472V
R412	RK3050	Chip. R	ERJ3GSYJ103V	R462	RK3038	Chip. R	ERJ3GSYJ102V
R413	RA0008	---	EXBV4V102JV	R463	RA0008	---	EXBV4V102JV
R414	RK3074	Chip. R	ERJ3GSYJ105V	RE401	UR0006	Encoder	EC09P20-51
R415	RK3044	Chip. R	ERJ3GSYJ332V	SP401	ES0005	Speaker	22SFF036S13D
R416	RA0008	---	EXBV4V102JV	W401	MWCL04GG	Wire	#30WH1-040-H1
R417	RA0008	---	EXBV4V102JV	W402	MBCLH4GG	Wire	#30BH1-045-H1
R418	RA0008	---	EXBV4V102JV	W403	UX1056	Wire	DJ-G40
R419	RK3062	Chip. R	ERJ3GSYJ104V	W404	MRCL02AA	Wire	
R420	RK3050	Chip. R	ERJ3GSYJ103V	W405	MACL02AA	Wire	
R421	RK3042	Chip. R	ERJ3GSYJ222V	X401	XB0010	Crystal	CSAC4.00MGC100-TC
R422	RK3054	Chip. R	ERJ3GSYJ223V	X402	XB0014	Crystal	CSAC3.58MGC300GA
R423	---	---	---	DH0010	---	Lighting Plate	
R424	RK3046	Chip. R	ERJ3GSYJ472V	FG0120	---	LCD Connector (A)	
R425	RK3046	Chip. R	ERJ3GSYJ472V	FG0121	---	LCD Connector (B)	
R426	RK3024	Chip. R	ERJ3GSYJ680V	FM0084	---	Encoder Ground	
R427	---	---	---	ST0037	---	LCD Holder	
R428	---	---	---	UP0236	---	DJG10CPU-IF Flex. P.C.B.	
R429	---	---	---				

## VCO Unit/CHARGE Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
VCO Unit				CHARGE Unit			
C201	CU3035	Chip C.	C1608JB1H102KT-A	C501	CU3031	Chip C.	C1608JB1H471KT-A
C202	CU3035	Chip C.	C1608JB1H102KT-A	C502	CU3031	Chip C.	C1608JB1H471KT-A
C203	CU3035	Chip C.	C1608JB1H102KT-A	CN501	UE0180	Connector	PI28A04M
C204	CU3035	Chip C.	C1608JB1H102KT-A	D501	XD0248	Diode	DE5SC4M-4061
C205	CS0210	Chip Tantal	TMCMBOJ156MTR	D502	XD0248	Diode	DE5SC4M-4061
C206	CU3035	Chip C.	C1608JB1H102KT-A	D503	XD0130	Diode	DA204UT106
C207	CS0210	Chip Tantal	TMCMBOJ156MTR	D504	XD0135	Diode	U1BC44TE12L
C208	CU3035	Chip C.	C1608JB1H102KT-A	FB501	QB0023	F.B.	HF70ACC575018-TL
C209	CU3003	Chip C.	C1608CH1H020CT-A	JK501	UJ0015	Jack	HEC2781-010-020
C210	CU3012	Chip C.	C1608CH1H120JT-A	Q501	XT0088	Transistor	2SA1213YTE12L
C211	CU3003	Chip C.	C1608CH1H020CT-A	R501	RK0002	Chip R.	ERJ6GSYJ120V
C212	CU3035	Chip C.	C1608JB1H102KT-A	R502	RK3046	Chip R.	ERJ3GSYJ472V
C213	CU3035	Chip C.	C1608JB1H102KT-A		AF0025		02+2.5FeNi1
C214	CU3035	Chip C.	C1608JB1H102KT-A		FG0135		Terminal Rubber
C215	CU3002	Chip C.	C1608CH1H010CT-A		FM0073		Shield Suport
C216	CU3047	Chip C.	C1608JB1H103KT-A		FP0070		Terminal Flame
D201	XD0129	Diode	1SS318 TT11		NB0051		Release Knob
D202	XD0132	Diode	1SV215 TPH4		SD0032		Battery Terminal
D203	XD0132	Diode	1SV215 TPH4		ST0039		Release Spring
D204	XD0133	Diode	1SV229 TPH3				
D205	XD0133	Diode	1SV229 TPH3				
D206	XD0133	Diode	1SV229 TPH3				
D207	XD0246	Diode	DAN235UT106				
L201	QKA35A	Coil	MR1.5 3.5T 0.4				
L202	QKA55A	Coil	MR1.5 5.5T 0.4				
L203	QKA25A	Coil	MR1.5 2.5T 0.4				
Q201	XT0030	Transistor	2SC3356-T1 BR24/25				
Q202	XT0030	Transistor	2SC3356-T1 BR24/25				
Q203	XT0106	Transistor	2SC4226-T1				
R201	RK3046	Chip R.	ERJ3GSYJ472V				
R202	RK3051	Chip R.	ERJ3GSYJ123V				
R203	RK3030	Chip R.	ERJ3GSYJ221V				
R204	RK3050	Chip R.	ERJ3GSYJ103V				
R205	RK3042	Chip R.	ERJ3GSYJ222V				
R206	RK3042	Chip R.	ERJ3GSYJ222V				
R207	RK3034	Chip R.	ERJ3GSYJ471V				
R208	RK3030	Chip R.	ERJ3GSYJ221V				
R209	RK3062	Chip R.	ERJ3GSYJ104V				
R210	RK3036	Chip R.	ERJ3GSYJ681V				
R211	RK3059	Chip R.	ERJ3GSYJ563V				
R212	RK3031	Chip R.	ERJ3GSYJ271V				
R213	RK3046	Chip R.	ERJ3GSYJ472V				
R214	RK3049	Chip R.	ERJ3GSYJ822V				
R215	RK3050	Chip R.	ERJ3GSYJ103V				
	FM0080		VCO Ground				
	FM0087		VCO Cover				
	TS0076	Case	VCO Case				
	UT0030		ø0.6 Pin				

## KEY Unit/PTT Unit/TSQ Unit

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
<b>KEY Unit</b>							
D601	XL0016	LED	SLM-13MW	C701	CU3027	Chip C.	C1608CH1H221JT-A
D602	XL0016	LED	SLM-13MW	C702	CU3027	Chip C.	C1608CH1H221JT-A
D603	XL0016	LED	SLM-13MW	C703	CU3059	Chip C.	C1608JF1E104ZT-A
D604	XL0016	LED	SLM-13MW	C704	CU3047	Chip C.	C1608JB1H103KT-A
R601	RK3026	Chip R.	ERJ3GSYJ101V	C705	CS0230	Chip Tantal	TMCMA1E105MTR
R602	RK3026	Chip R.	ERJ3GSYJ101V	C706	CS0060	Chip Tantal	TMCSA1E474MTR
	UP0238	P.C.B.	DJG104KEY Flex.	C707	CU3035	Chip C.	C1608JB1H102KT-A
				C708	CS0237	Chip Tantal	TMCMA1A475MTR
<b>PTT Unit</b>							
SW501	UU0015	SW	SKQD-901	CN701	UE0132	Connector	DF9A9P-1V(22)
SW502	UU0015	SW	SKQD-901	D701	XD0230	Diode	DAN202U T106
SW503	UU0015	SW	SKQD-901	IC701	XA0241	IC	MX265DW-TR
SW504	UU0015	SW	SKQD-901	R701	RK3076	Chip R.	ERJ3GSYJ105V
	AK0006		0B2+3FeNi3	R702	RK3058	Chip R.	ERJ3GSYJ473V
	ST0038		PTT Angle	R703	RK3076	Chip R.	ERJ3GSYJ105V
				R704	RK3059	Chip R.	ERJ3GSYJ563V
				R705	RK3026	Chip R.	ERJ3GSYJ101V
				X701	XB0006	Crystal	CSB1000J221
					UP0245	P.C.B.	EJ-16U 1/24

Mechanical Parts/Packing

Ref. No.	Parts No.	Description	Parts Name	Ref. No.	Parts No.	Description	Parts Name
Mechanical Parts				Packing			
	AF0012	Screw	O2+4FeCr3		EA0031		Antenna DJG40
	AF0023	Screw	O2+2.8FeB/C3		EG0019		Ni-Cd EBP30N
	AF0024	Screw	O2+2.8FeCr1		EW0003		Charger EDC55 (T)
	AF0025	Screw	O2+2.5FeNi1		EW0004		Charger EDC56 (E)
	AG0001	Screw	S02.6+5FeNi1		HK0320		Item Carton Box
	AK0005	Screw	0B2.6+5FeNi1		HP0022		Protection Bag (Radio)
	AK0006	Screw	0B2.6+3FeNi3		HP0028		Protection Bag (Manual)
	AN0012	Nut	Dial Nut		HU0050		Fixture
	AP0015	Screw	P2+10FeB/C		PH0009		Registration Card
	AZ0012	Washer	W2.6+6FeCr		PK0050		Circuit Diagram
	CC0104		50V 3pF CH		PS0183		Instruction Manual DJ-G1T
	DK0113		LCD Seal 144		PT0004A		Lot Number Seal
	DP0069		LCD Panel (A)		#G0535		
	DS0310		Model Name Sheet DJG1T		AA0020		Belt Clip Unit B
	DS0311		Model Name Sheet DJG1E		BB0007		2.6+4FeCr
	FG0100A		EP/MIC Cushion		BH0008A		Belt
	FG0122A		4-Key Rubber		HP0003		Belt Clip
	FG0123B		16-Key Rubber		YZ0121		Protection Bag
	FG0126		PTT Rubber				Tape 10mm
	FG0127		DC Rubber				
	FG0128		Jack Rubber				
	FG0131		LED Rubber				
	FG0143		Rubber				
	FM0085		Terminal DJ-G40				
	FP0071		15-Key PB Holder				
	FP0077		4-Key Sheet				
	FY0001		Case Tape(B)				
	NK0032		SQL Knob				
	NK0033		VOL Knob				
	NK0034		Dial Knob				
	KB0041A		Rear Case				
	KM0154		Front Case DJ-G1T				
	PR0237		FCC Part 15 Seal				
	ST0040		SP Holder				
	TG0016A		SP Net(A)				
	TS0078		RF Shield				
	TZ0054		Insulator				
	TZ0055		Insulator Seal				
	UE0193		BNC Receptacle				
	YZ0044		Screw Lock 1401C				
	YZ0125		LCD Panel Tape(A)				

# Adjustment

## 1) DJ-G1T Adjustment

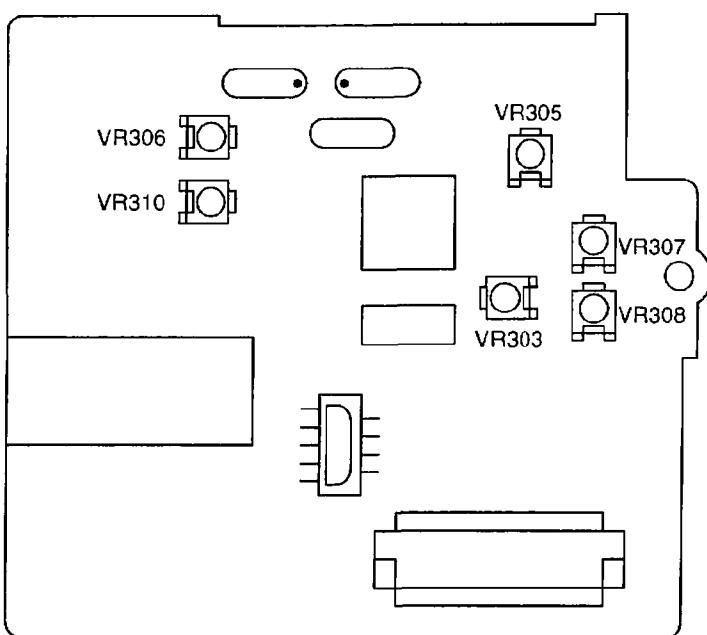
Item	Freq. (MHz)	TX/RX	Mesurement point or condition			Adjustment Point			Specification		
VHF VCO	146.05	RX	RF	A	P/D	VCO	A	L202	1.0+/-0.1V		
UHF VCO	445.05	RX	RF	A	P/D	VCO	A	L203	1.8+/-0.1V		
Reference Frequency	146.05	TX	LOW	TX Frequency		RF	A	TC1	146.05MHz+/- 50Hz		
VHF Sensitivity	146.05	RX	12dB SINAD is MAX			RF	A	L12 L13 L15	12dB SINAD below -9dB $\mu$ V (ENF)		
UHF Sensitivity	445.05	RX	Check			None			12dB SINAD below -5dB $\mu$ V (ENF)		
S Meter	146.05	RX	Modulation Frequency: 1kHz Deviation: +/-3.5kHz Input Level: -3dB $\mu$ V (EMF)			IF	A	VR310	1 digit on		
TX Power	146.05	TX	HI	TX Power (13.8V supplied from DC Jack)		IF	A	VR308	5+/-0.1W		
			MID			IF	A	VR307	1+/-0.1W		
			LOW			100 ~ 400mW					
TX Spurious	146.05	TX	HI	TX Spurious (13.8V supplied from DC Jack)		None			Below -60dBc		
			LOW						Below -60dBc		
Microphone Deviation	146.05	TX	LOW	Mod. freq.: 1kHz Input: 50mV		IF	A	VR305	4.5+/-0.1kHz		
DTMF Deviation				Push "1" key on key pad.		IF	A	VR306	3.1+/-0.1kHz		
CTCSS Deviation				Sub Tone freq. is 88.5Hz.		IF	A	VR303	800+/-100Hz		
1750Hz Tone Burst Deviation				Push Tone Burst switch.		IF	A	VR304	3.0+/-0.1kHz		

## 2) DJ-G1E Adjustment

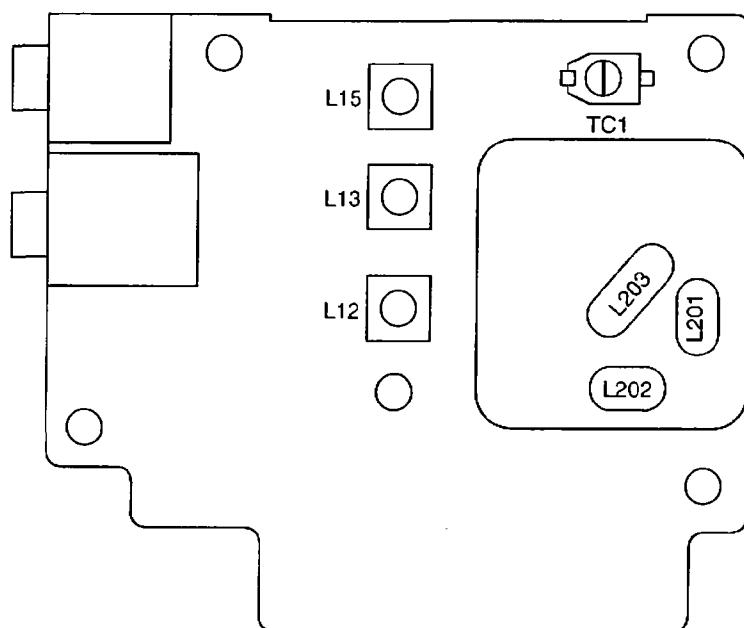
Item	Freq. (MHz)	TX/RX	Mesurement point or condition			Adjustment Point			Specification		
VHF VCO	145.05	RX	RF	A	P/D	VCO	A	L202	0.9+/-0.1V		
UHF VCO	433.05	RX	RF	A	P/D	VCO	A	L203	1.4+/-0.1V		
Reference Frequency	145.05	TX	LOW	TX Frequency		RF	A	TC1	145.05MHz+/- 50Hz		
VHF Sensitivity	145.05	RX	12dB SINAD is MAX			RF	A	L12 L13 L15	12dB SINAD below -9dB $\mu$ V (ENF)		
UHF Sensitivity	433.05	RX	Check			None			12dB SINAD below -5dB $\mu$ V (ENF)		
S Meter	145.05	RX	Modulation Frequency: 1kHz Deviation: +/-3.5kHz Input Level: -3dB $\mu$ V (EMF)			IF	A	VR310	1 digit on		
TX Power	145.05	TX	HI	TX Power (13.8V supplied from DC Jack)		IF	A	VR308	5+/-0.1W		
			MID			IF	A	VR307	1+/-0.1W		
			LOW		100 ~ 400mW						
TX Spurious	145.05	TX	HI	TX Spurious (13.8V supplied from DC Jack)	None			Below -60dBc			
			LOW					Below -60dBc			
Microphone Deviation	145.05	TX	LOW	Mod. freq.: 1kHz Input: 50mV	IF	A	VR305	4.5+/-0.1kHz			
DTMF Deviation				Push "1" key on key pad.	IF	A	VR306	3.1+/-0.1kHz			
CTCSS Deviation				Sub Tone freq. is 88.5Hz.	IF	A	VR303	800+/-100Hz			
1750Hz Tone Burst Deviation				Push Tone Burst switch.	IF	A	VR304	3.0+/-0.1kHz			

### 3) Adjustment Points

#### IF Unit

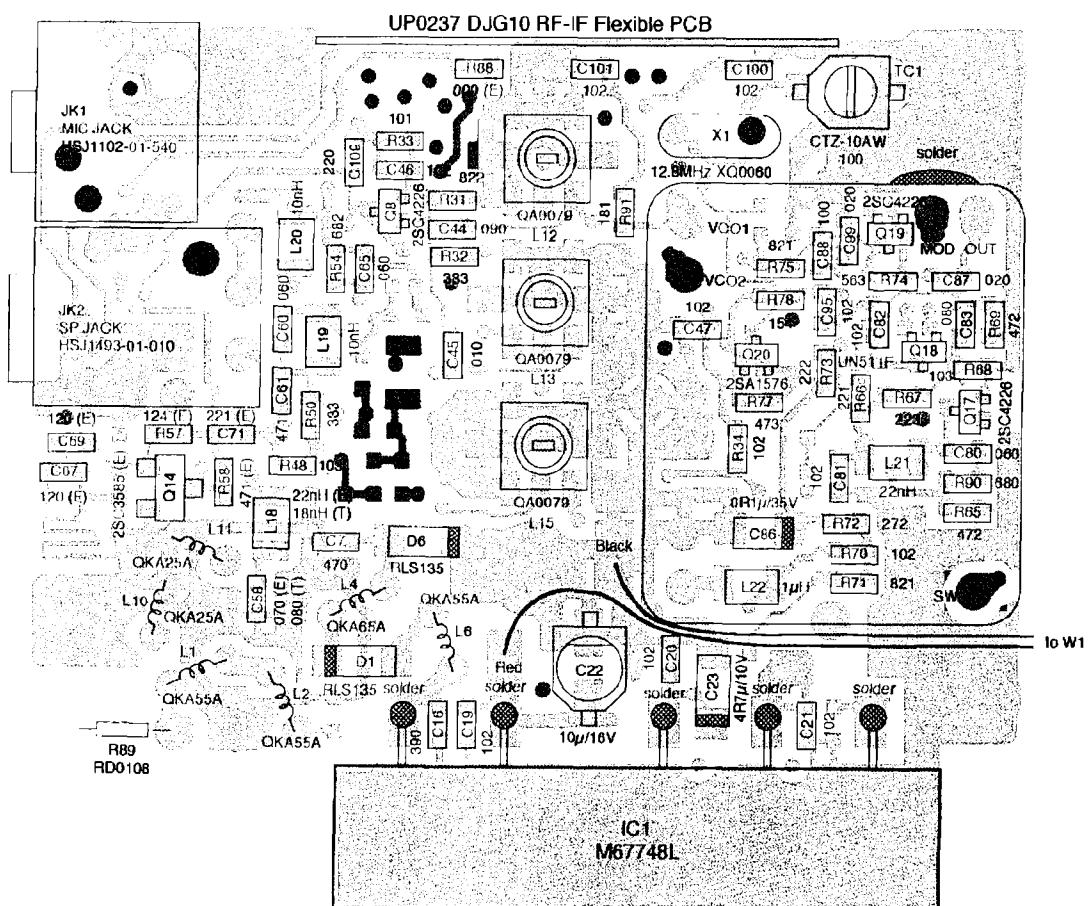


#### RF Unit

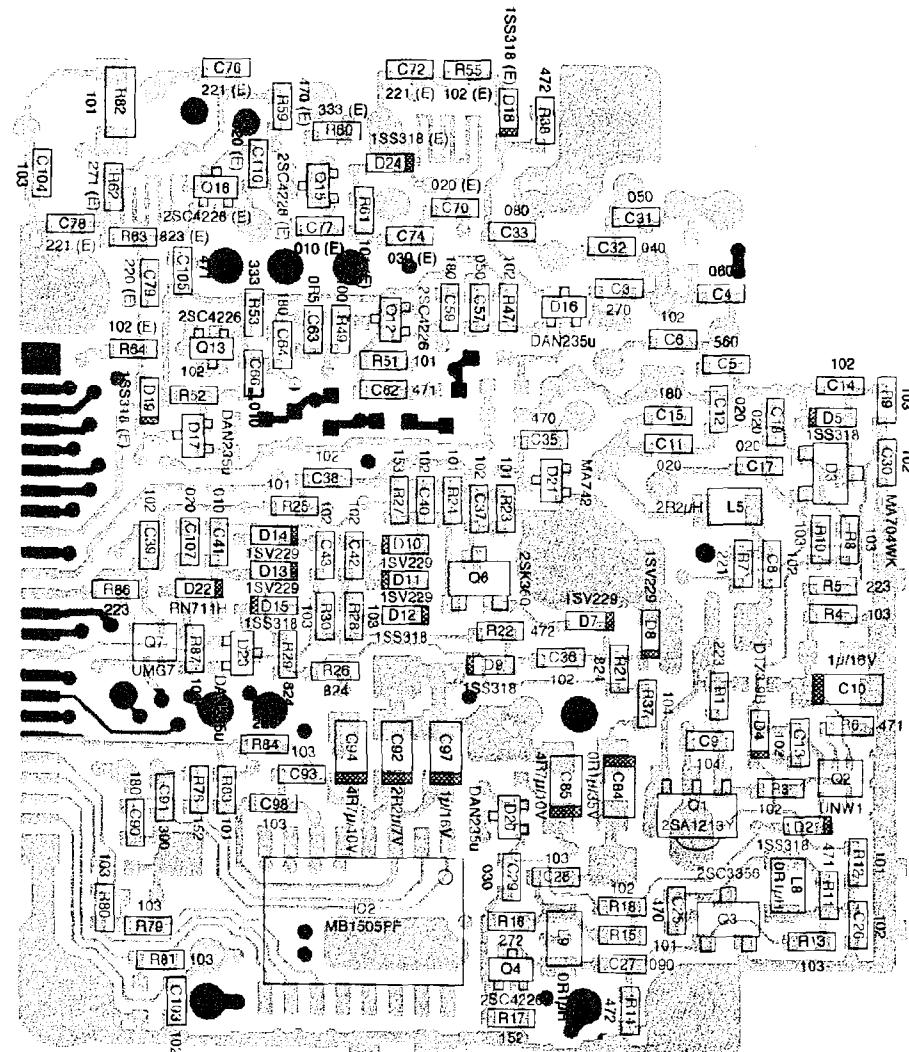


## **PC BOARD VIEW**

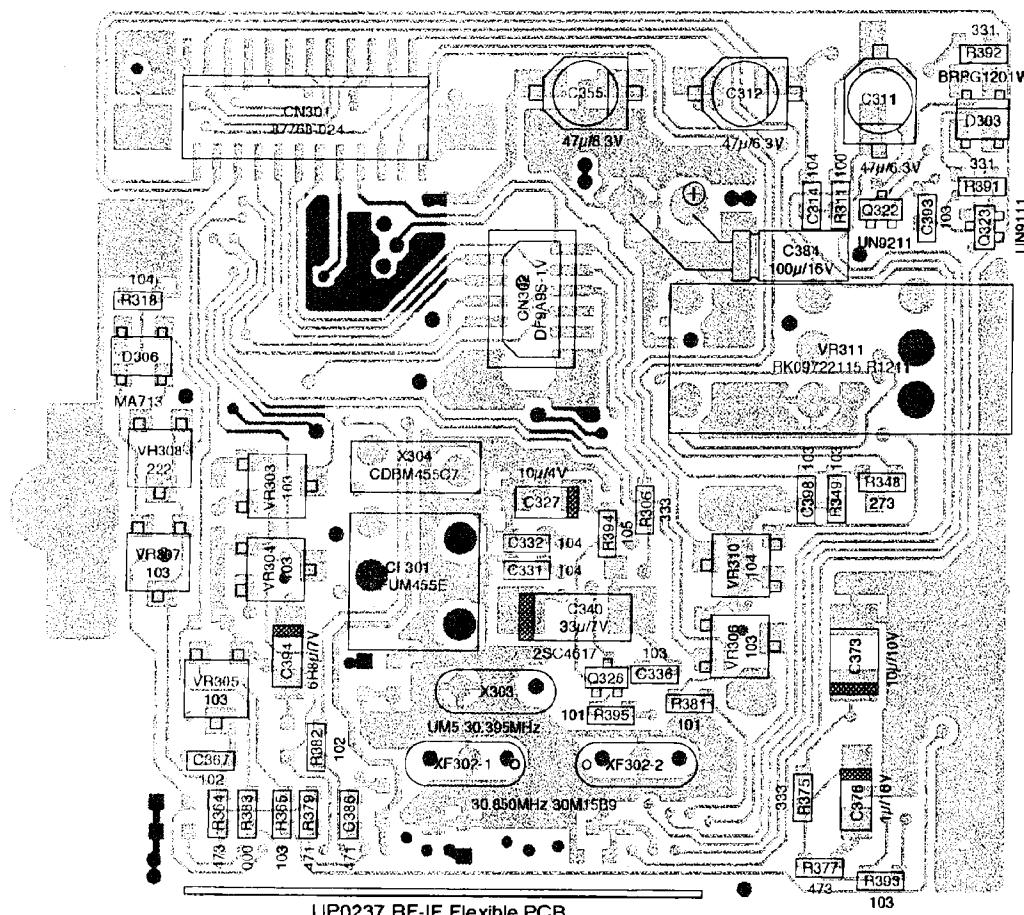
## **1) RF Unit Side A**



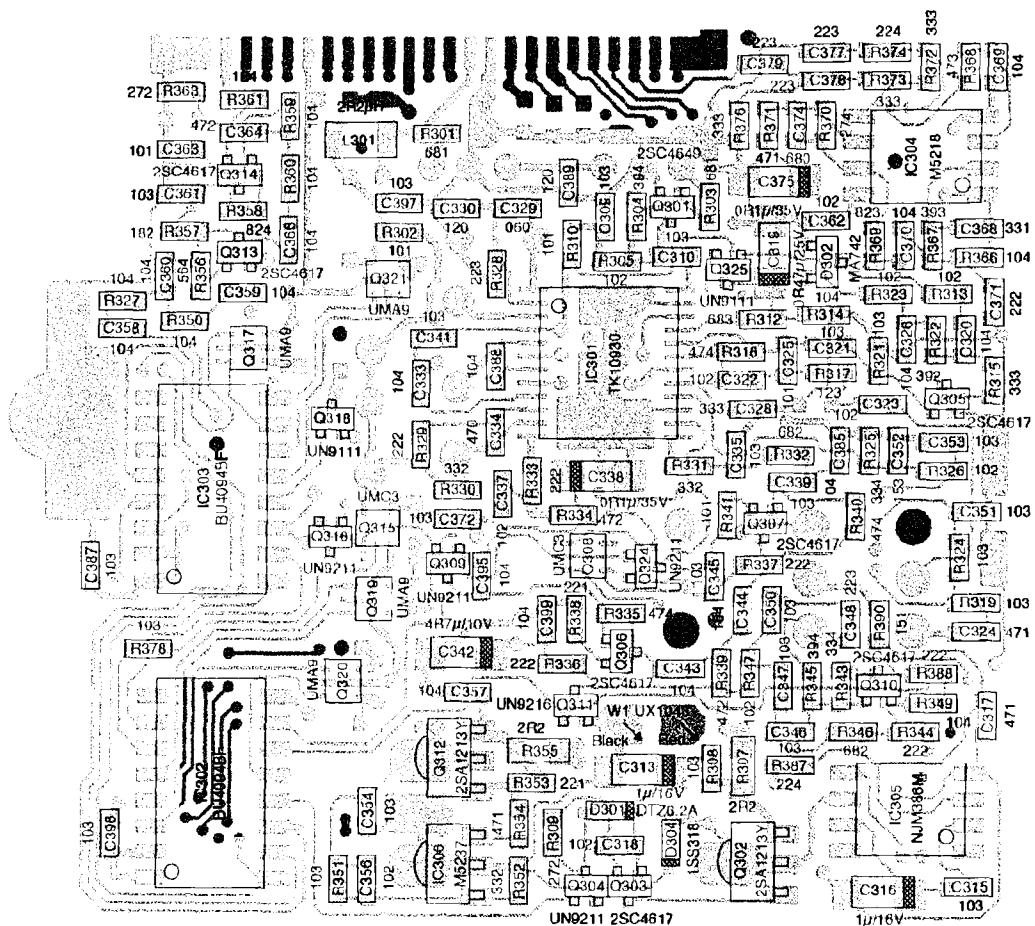
## 2) RF Unit Side B



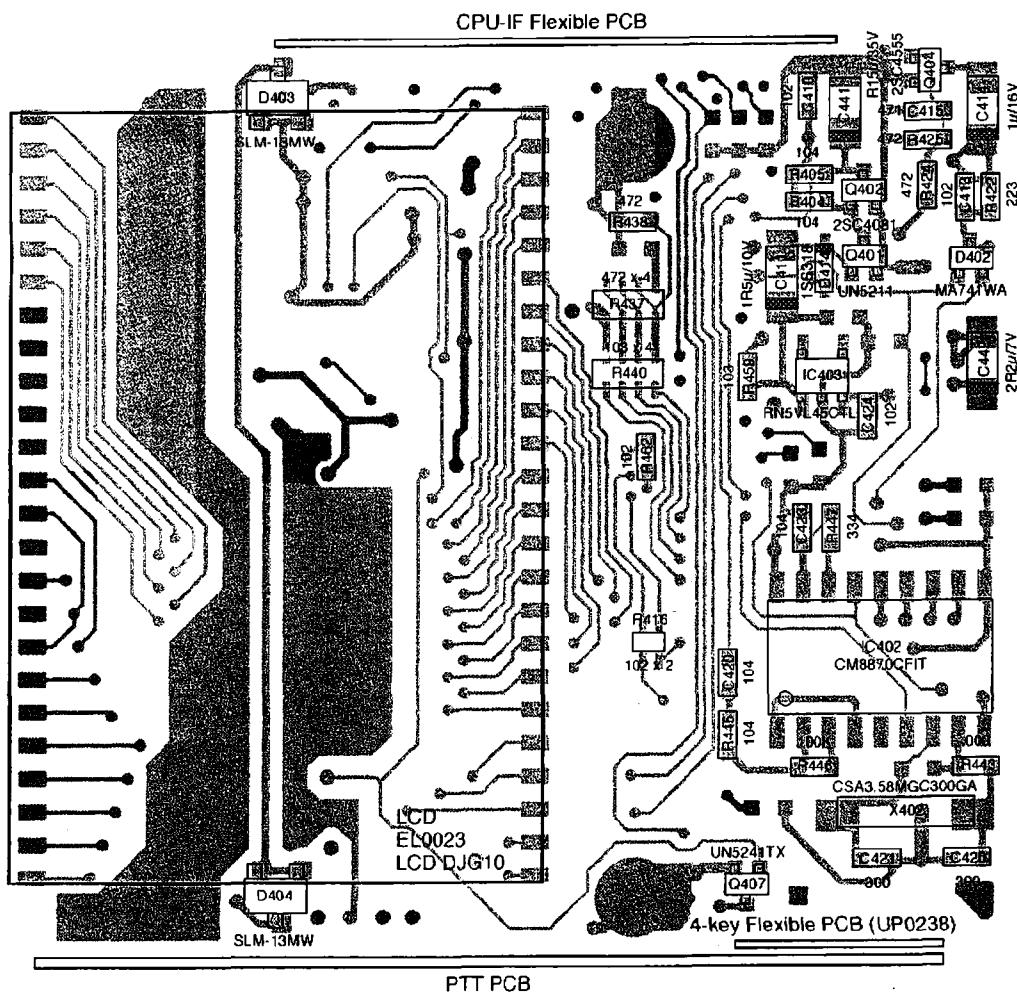
### **3) IF Unit Side A**



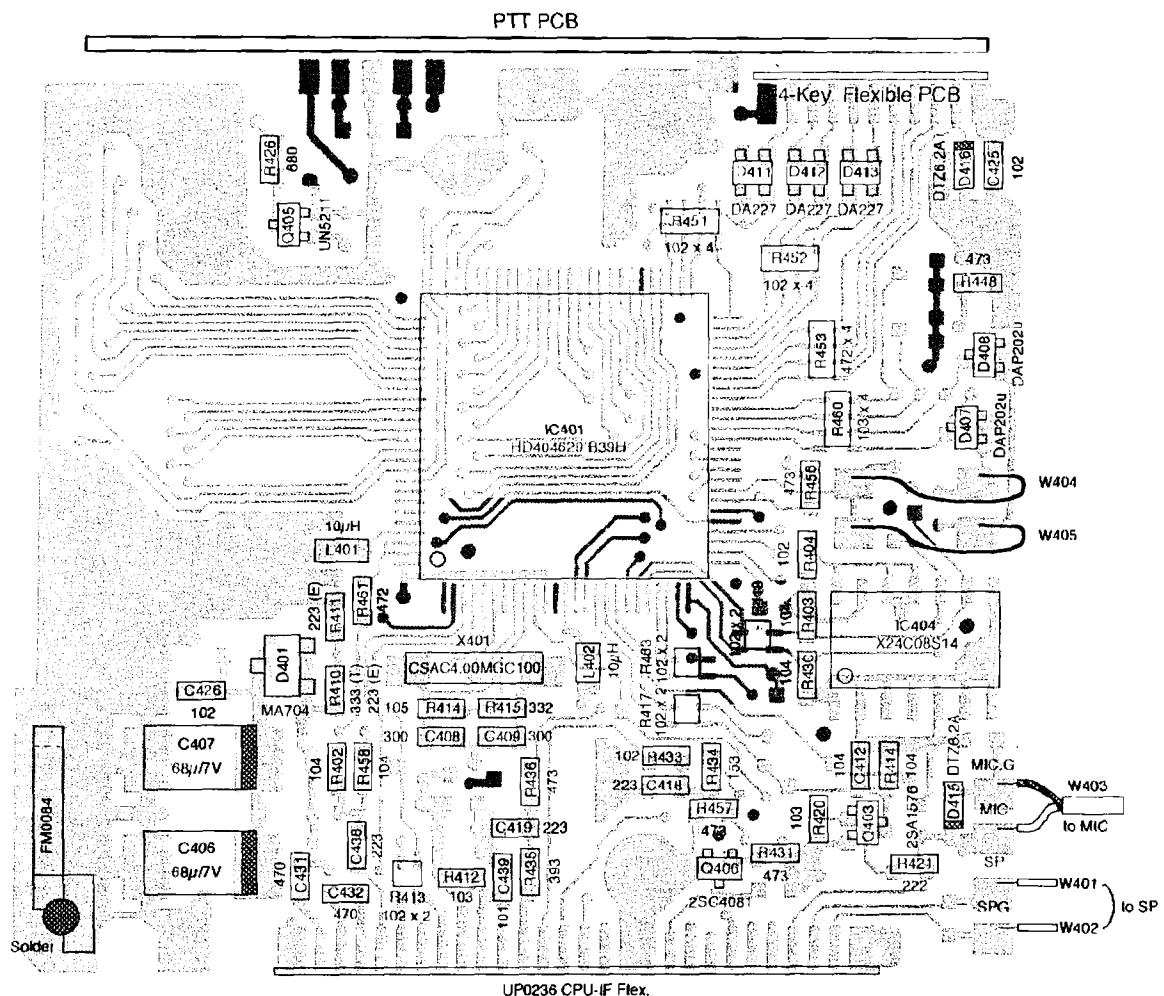
#### **4) IF Unit Side B**



## 5) CPU Unit Side A

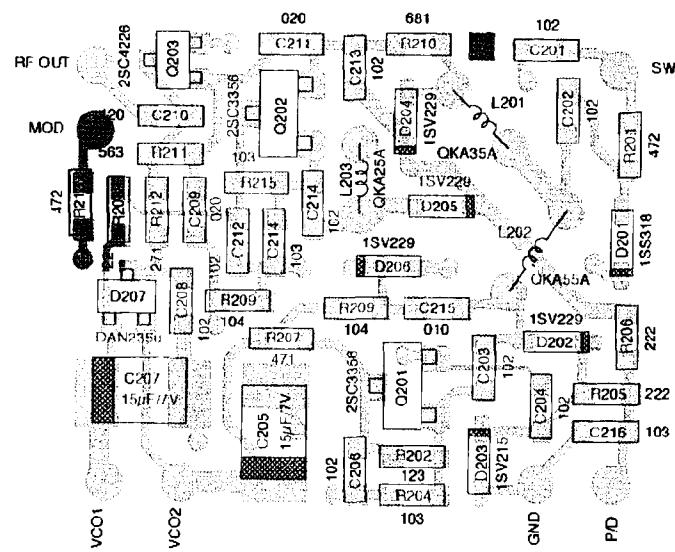


## **6) CPU Unit Side B**

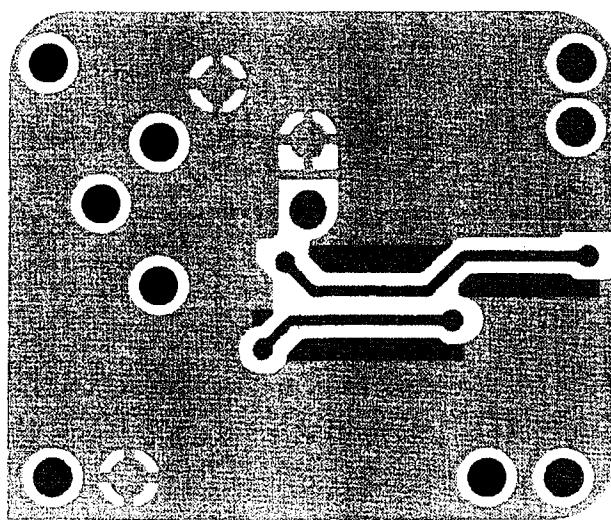


## 7) VCO Unit

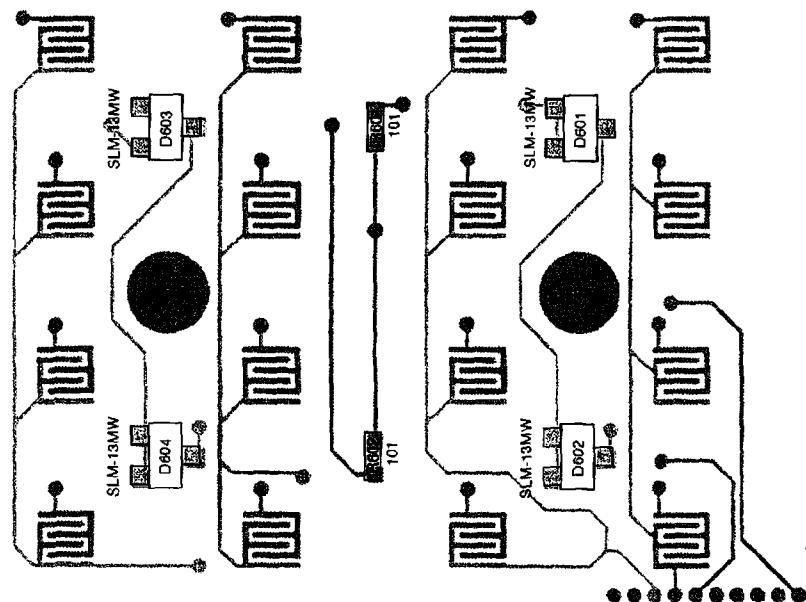
**Side A**



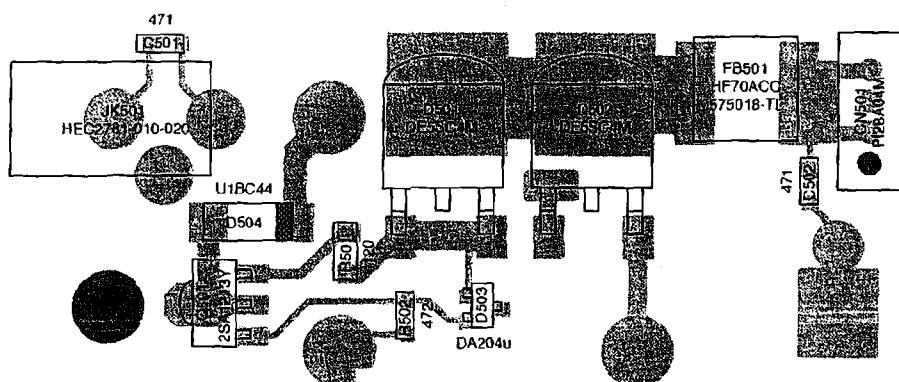
## **Side B**



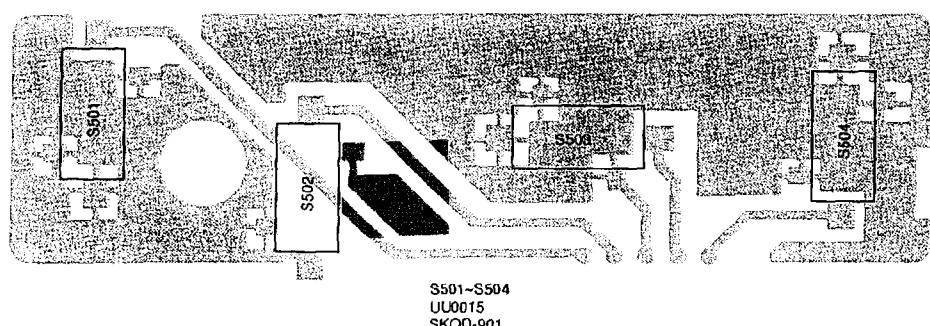
## 8) KEY UNIT

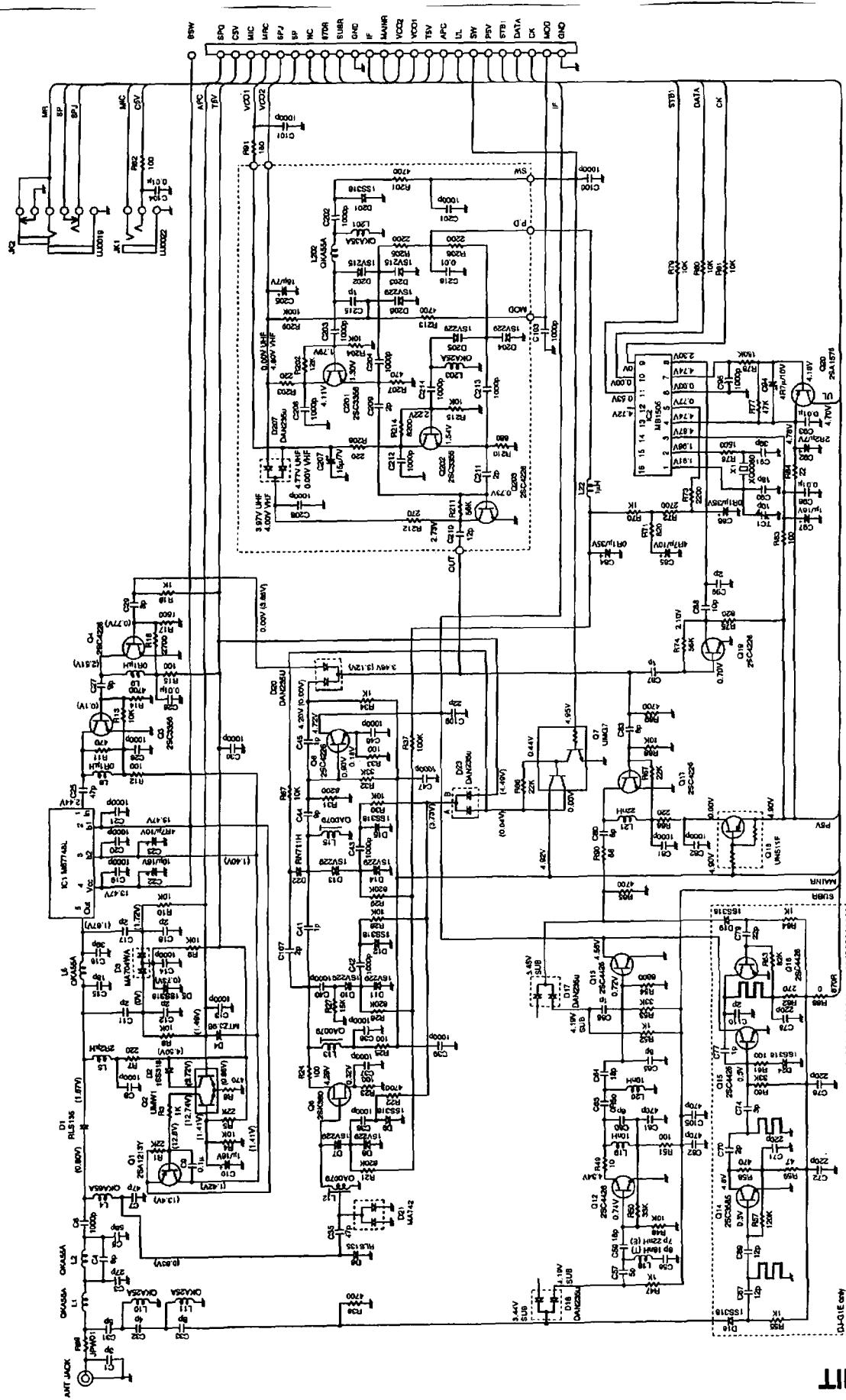


## 9) Charge UNIT



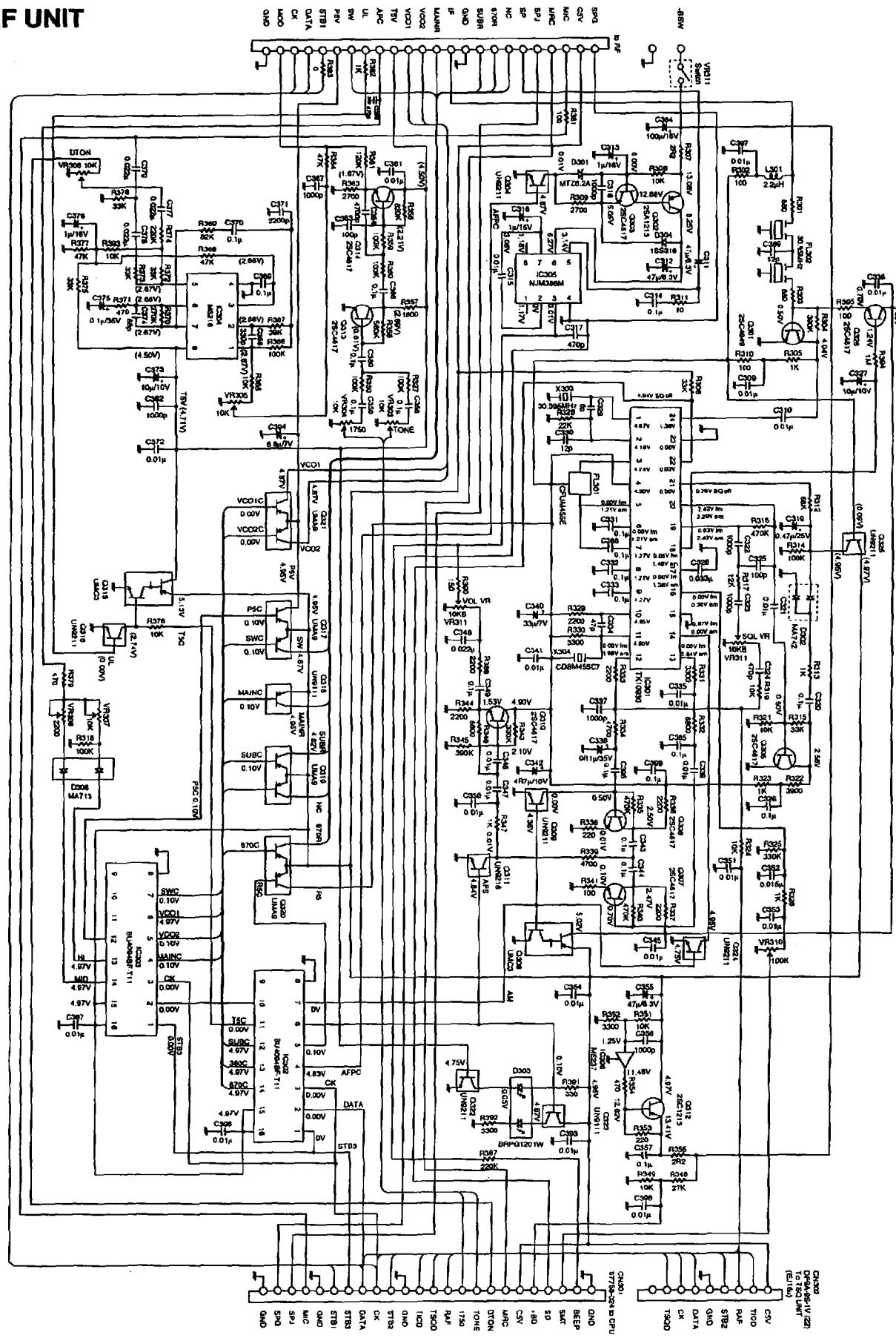
## 10) PTT UNIT



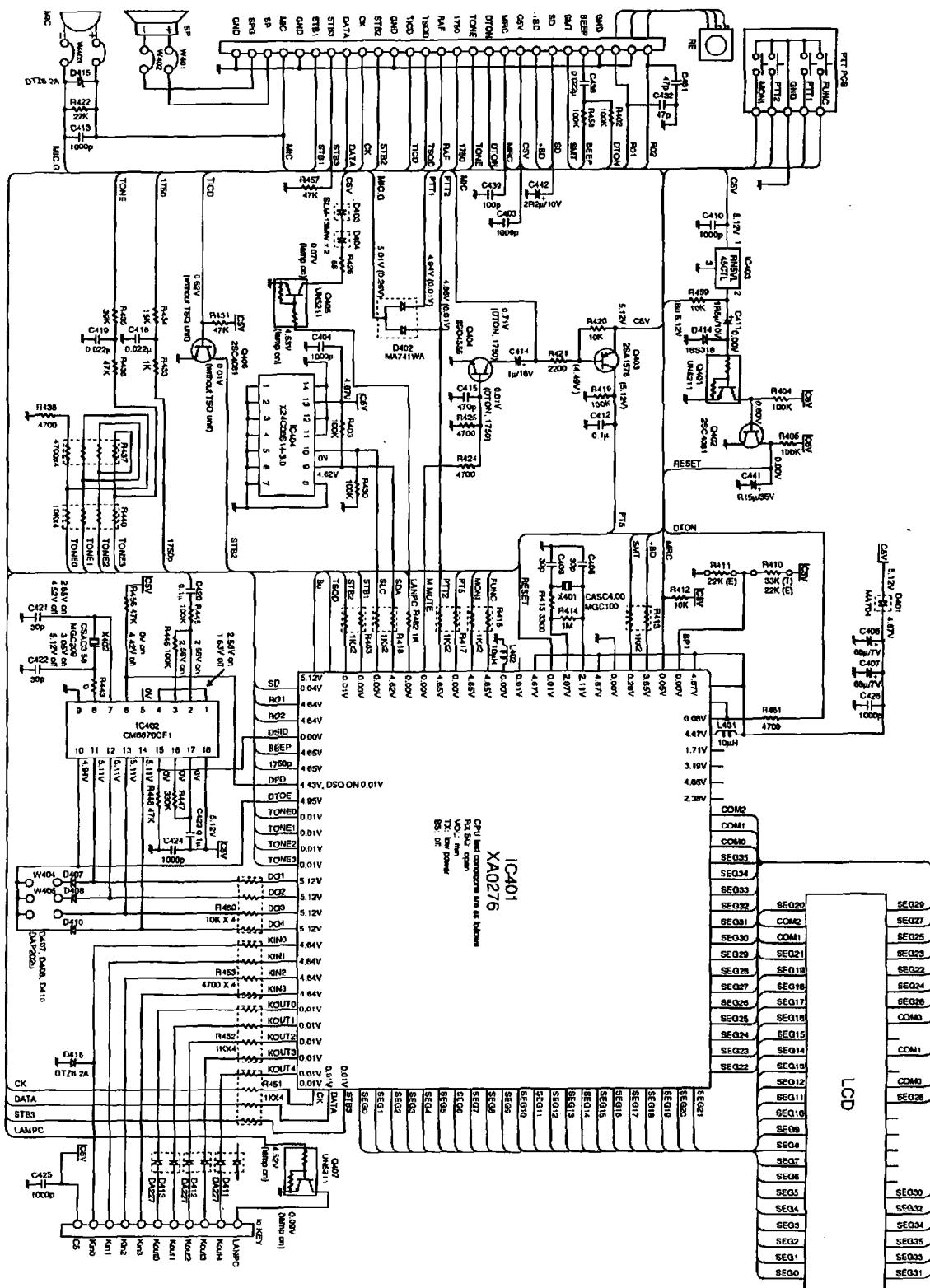


## Schematic Diagram

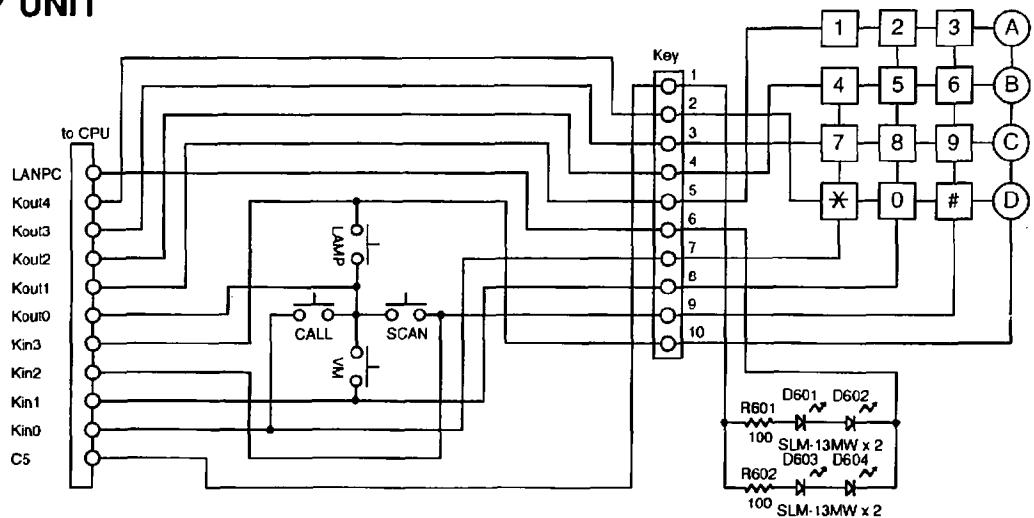
## **2) IF UNIT**



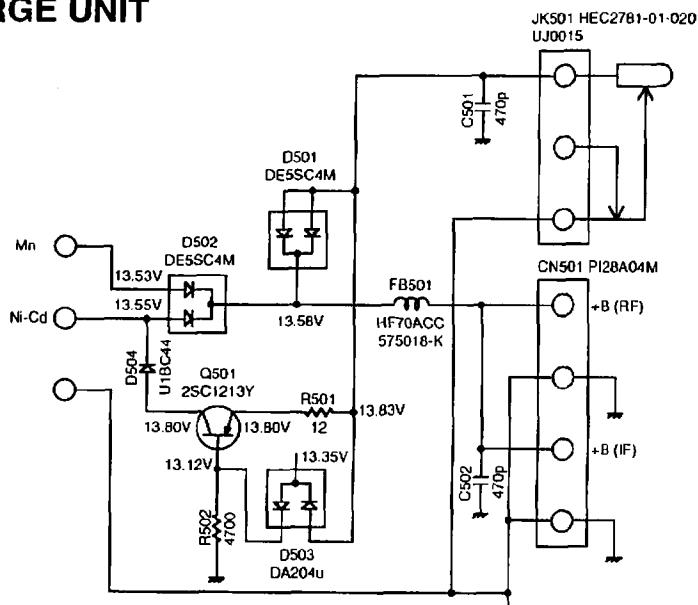
### **3) CPU Unit**



#### 4) KEY UNIT

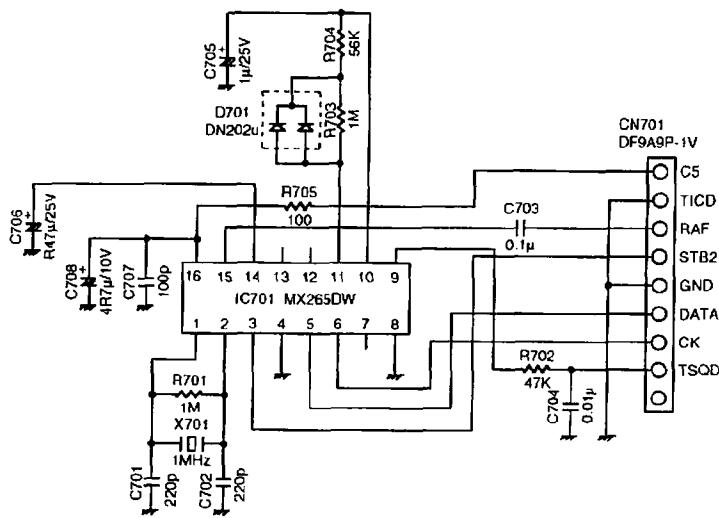


#### 5) CHARGE UNIT

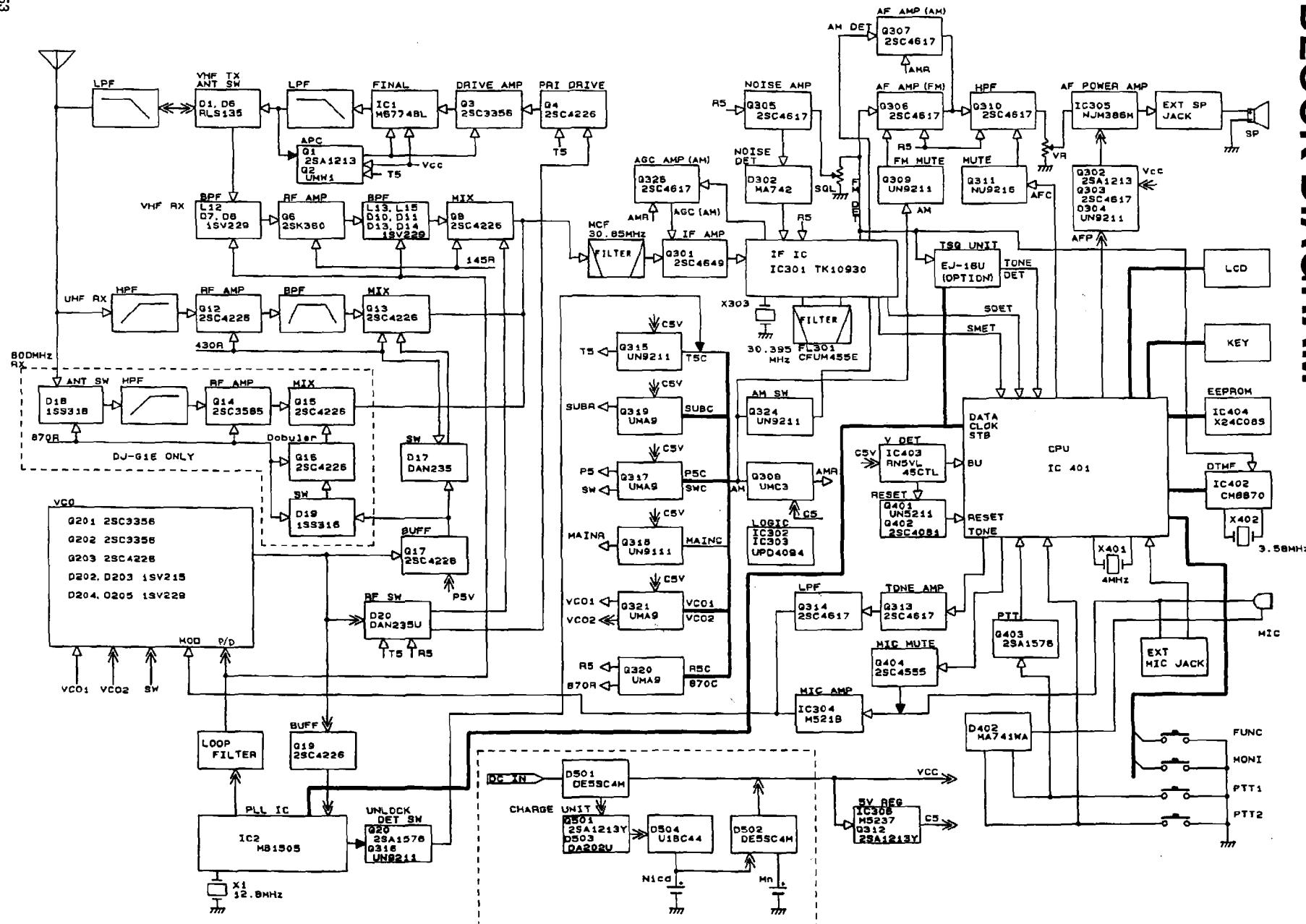


#### 6) CTCSS Unit

EJ-16u



## BLOCK DIAGRAM





## **ALINCO ELECTRONICS INC.**

- Head Office:** "TWIN 21" MID Tower Building 23F  
1-61, 2-Chome, Shiromi, Chuo-ku, Osaka No. 540, Japan  
PHONE: 06-946-8150 FAX: 06-946-8175
- USA:** **ALINCO ELECTRONICS INC.**  
438 Amapola Avenue, Unit 130, Torrance, CA 90501, U.S.A.  
PHONE: 310-618-8616 FAX: 310-618-8758
- Germany:** **ALINCO ELECTRONICS GMBH**  
Alt Hausen 34, D-60488 Frankfurt am Main, Germany  
PHONE: 069-786018 FAX: 069-789-60766
- Italy:** **ALINCO ELECTRONICS S.R.L.**  
Via Straffora, 35/D, 20090 Opera (Milano), Italy  
PHONE: 02-57605160 FAX: 02-57606091
- China:** **ALINCO ELECTRONICS (Beijing Office)**  
Beijing Fortune Bldg. Room 918-A  
No.5 Dong San Huan Bei Lu, Chaoyang District Beijing China  
PHONE: 01-501-7561 FAX: 01-501-7560

Dealer/Distributor